



VCS, VCT, VPS & VPT Low Intensity, Tubular Radiant Heaters 45 - 200 MBH

The V series of radiant heaters provides spot heating where it is needed. You don't need to heat an entire warehouse or factory when you only need to keep workers in a central location warm.

These units heat like the sun. They warm people and objects in the path of their radiant rays. This is especially beneficial when you need to keep loading dock or car repair shop workers warm when the bay doors are open and closed to the cold winter air often.

FEATURES and BENEFITS

- **Saves money on heating bills** - by providing spot heating to specific areas, you save the expense of heating the entire building
- **Speedy heat recovery** - when opening bay doors, heating rays continue to warm people and objects in the path of the radiant rays even on cold winter days
- **Environmentally friendly** - low NOx emissions
- **Provide the right amount of heat where it is needed**
 - Models VCT and VPT offer two stage heating when maximum heating may not be required
 - Units can be zone controlled
- **More even heating along the length of the heater** - the V Series has a longer flame than contemporary radiant heaters. The result is more even heating from beginning to end.
- **Quiet** - the noise level is below conventional radiant heaters
- **Robust design stands up to harsh/humid environments** - the VC series is constructed of stainless steel so it can be installed in humid environments or even outdoors. Its nickname is "The Car Wash Heater."

- **Durable, built to last** - the V series carries a 10 year warranty on the heat exchanger and combustion chamber tubes. There is also a 5 year warranty on all electrical and mechanical components.

IDEAL LOCATIONS FOR INSTALLING A TUBULAR RADIANT HEATER

- Warehouse
- Factory
- Auto Repair Shop
- Car Wash
- Outdoor Patio (commercial or residential)
- Walkway
- Indoor Swimming Pool
- Greenhouse
- Outdoor Market
- Stadium
- Hotel Entry Way (to melt snow)
- Water Treatment Plant
- Taxi/Bus Stand
- Smoking Shelter
- Animal Shelter (dogs, cats, pigs, poultry)
- Bus/Airport Terminal
- Food Processing Areas (where equipment requires washing down for cleaning)
- Subway Entrance
- Loading Dock
- Textile Factory (for mildly dirty environment, us combustion air inlet kit)
- Restaurant Patio
- Airplane Hangar

Models VPS & VPT

Gas-Fired Tubular Radiant, Low Intensity Heater for Indoor Commercial-Industrial Use



ANSI
Z83.20b-2011

CSA
2.34b-2011

DESCRIPTION

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 air flow.

The Calcoat™ and rolled steel tubes are in 10-foot sections with each section having an aluminized steel reflector. Optional stainless steel (300 series grade) tubes and (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.

Models VPS & VPT

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 air flow
- 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

OPTIONAL FEATURES - Factory Installed

- 208/1/60 supply voltage (Contact your Factory Rep for availability and lead time)
- 230/1/60 supply voltage (Contact your Factory Rep for availability and lead time)
- 220/240/1/50 supply voltage (Contact your Factory Rep for availability and lead time)

OPTIONAL FEATURES - Field Installed

- Stainless steel (300 series grade) 10 ft. tubes
- 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)
- 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)

TECHNICAL DATA

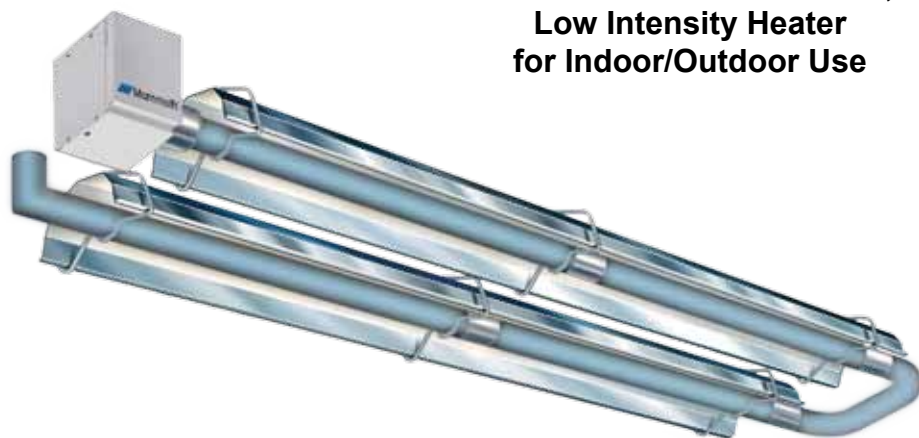
Size			60	80	100	125	150	170	200
Heating Capacity	High ^A	MBH	60	80	100	125	150	170	200
		(kW)	(18)	(23)	(29)	(37)	(44)	(50)	(59)
	Low ^B	MBH	45	60	65	95	100	125	150
		(kW)	(13)	(18)	(19)	(28)	(29)	(37)	(44)
Length Range	Model VPS	ft	20 - 40	20 - 40	30 - 50	40 - 60	40 - 70	50 - 80	50 - 80
		(M)	(6.1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

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

^B Low capacity heating applies to Model VPT when fired at low capacity.

^C 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 VCS & VCT Harsh Environment Gas-Fired Tubular Radiant, Low Intensity Heater for Indoor/Outdoor Use



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.



ANSI
Z83.20b-2011



CSA
2.34b-2011

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. ^B

DESCRIPTION

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 air flow.

The (300 series grade) stainless steel tubes are in 10-foot sections with each section having a (400 series grade) stainless steel reflector. 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).

^B 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.”

Model VCS & VCT

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 air flow
- Diagnostic indicator lights (ignition circuit board)
- Operation indicator lights
 - Red light - power on
 - One amber light - burner on (Model VCS)
 - Two amber lights - burner on hi/lo (Model VCT)
- Stainless steel (300 series grade) 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

OPTIONAL FEATURES - Factory Installed

- 208/1/60 supply voltage (Contact your Factory Rep for availability and lead time)
- 230/1/60 supply voltage (Contact your Factory Rep for availability and lead time)
- 220/240/1/50 supply voltage (Contact your Factory Rep for availability and lead time)

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
- 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)

TECHNICAL DATA

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

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

^B Low capacity heating applies to Model VCT when fired at low capacity.

^C 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.

Tubular Infrared Selection Matrix

Basic Model Selection

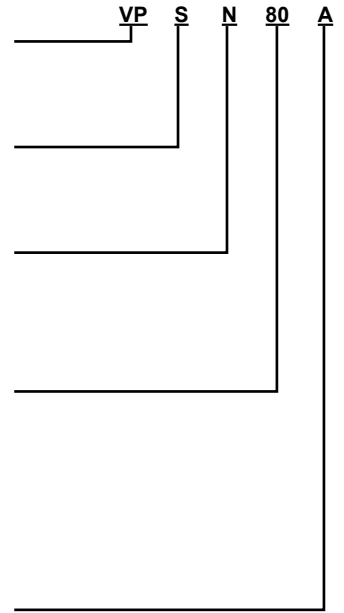
Description	Model
Positive Pressure Radiant Heater	VP
Harsh Environment Positive Pressure Radiant Heater	VC

Description	Type
Single Stage	S
Two-Stage	T

Description	Gas Type
Natural Gas	N
Propane	P

MBH Input	Size
60	60
80	80
100	100
125	125
150	150
170	170
200	200

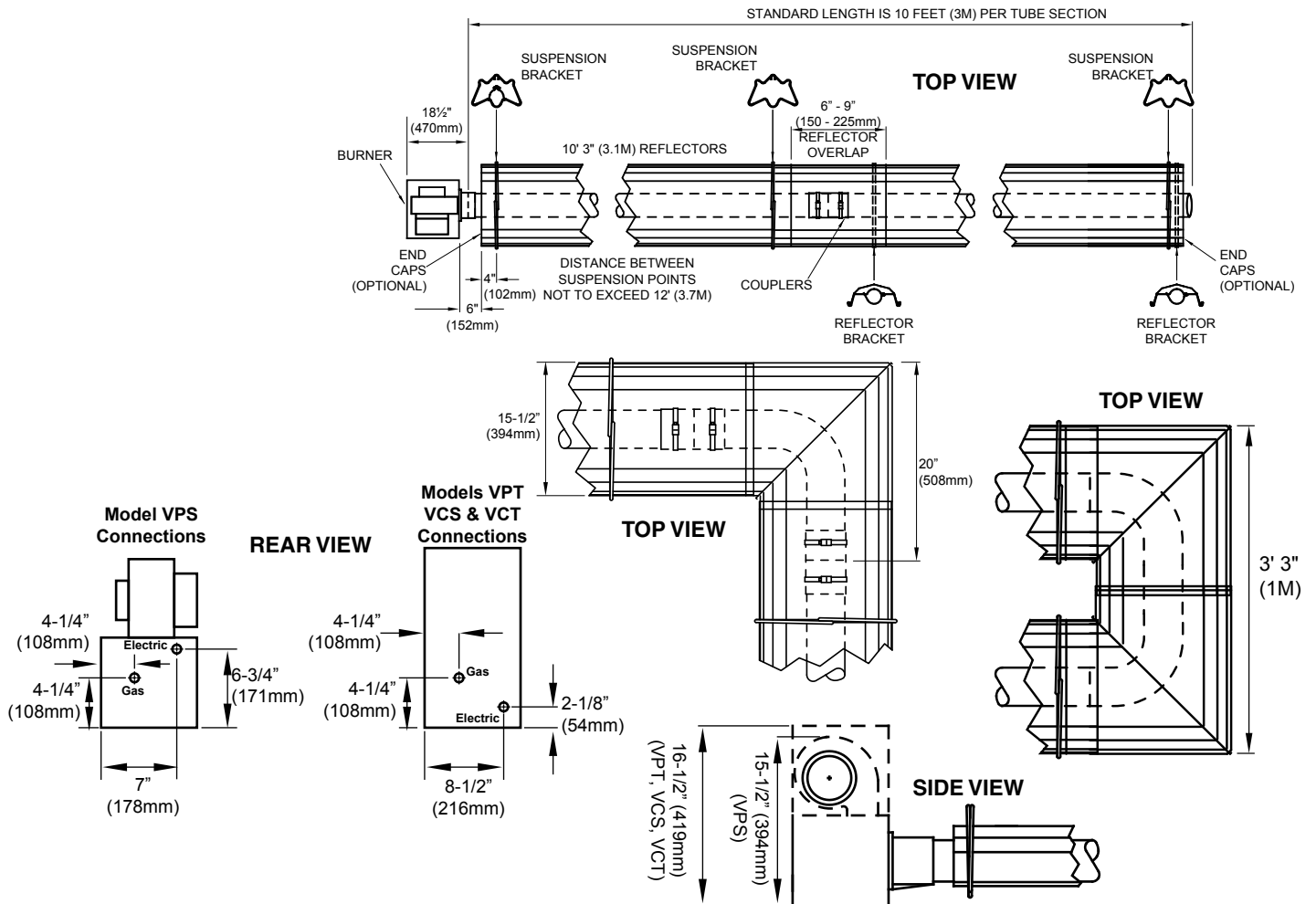
Electrical Supply	
120/24V	A
208/24V	B
240/24V	C
120/120V	D
208/120V	E
240/120V	F



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.



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

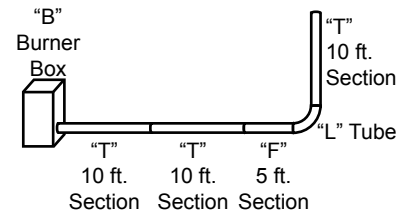
$$\text{Installed Weight} = B + (N \times T) + F + U + L$$

For the example installation to the right 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. You would use the stainless steel tube weights since Model VCS require stainless steel tubes.

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

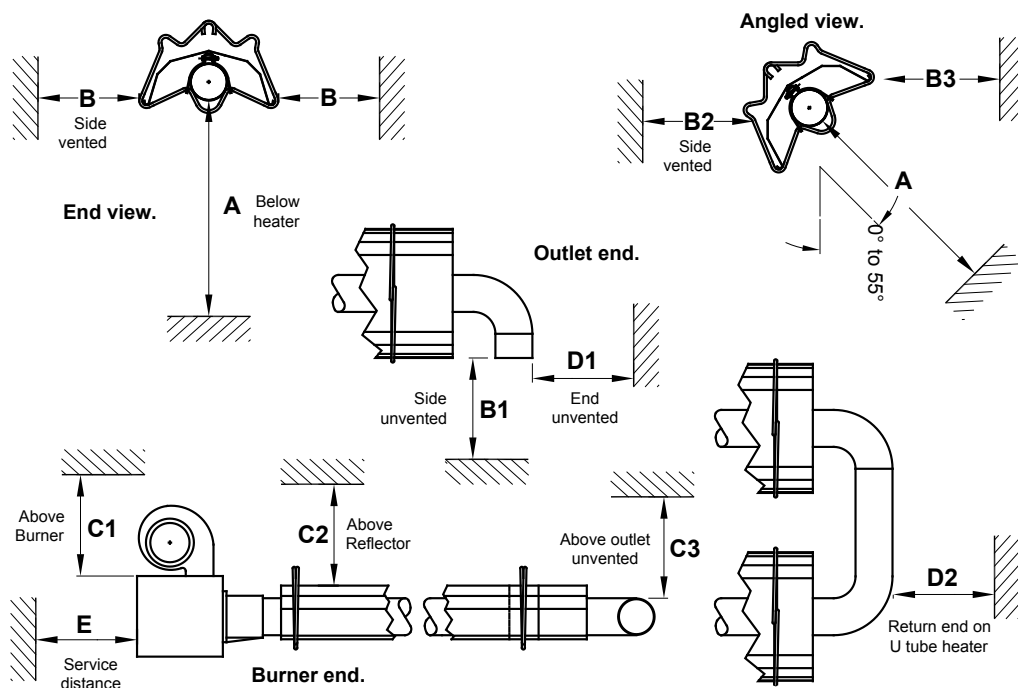
The total installed weight would be 97.5 lbs. or 44.2 kg.

Model	B Burner Box	
	lb.	(kg)
VPS	25	(11.5)
VPT	29	(13.3)
VCS	34	(15.3)
VCT	38	(17.2)



	T 10 Ft Tube and Reflectors		F 5 Ft Tube Section		U "U" Tube Section		L "L" Tube Section	
	lb.	(kg)	lb.	(kg)	lb.	(kg)	lb.	(kg)
Tube Material								
Rolled Steel and/or Calcoat	13	(5.9)	7	(3.2)	13	(5.9)	10	(4.5)
Stainless Steel	14.5	(6.6)	10	(4.5)	17	(7.7)	10	(4.5)

Clearances to Combustibles



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

Models VPS

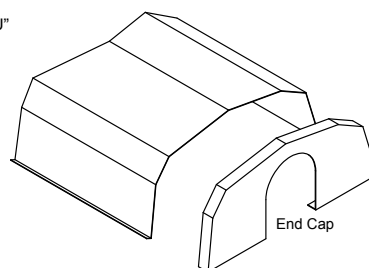
Size	A	B	B1	B2	B3	C1	C1 ^A	C2	C3 ^B	D1	D2	E
	in. (cm)	in. (cm)	in. (cm)	in. (cm)	in. (cm)	in. (cm)	in. (cm)	in. (cm)	in. (cm)	in. (cm)	in. (cm)	in. (cm)
60	74 (188)	29 (74)	41 (105)	8 (21)	58 (148)	20 (51)	10 (26)	8 (21)	22 (56)	8 (21)	12 (31)	12 (31)
80	74 (188)	29 (74)	41 (105)	8 (21)	58 (148)	20 (51)	10 (26)	8 (21)	22 (56)	8 (21)	12 (31)	12 (31)
100	74 (188)	32 (82)	41 (105)	10 (26)	63 (160)	20 (51)	10 (26)	8 (21)	22 (56)	8 (21)	16 (41)	12 (31)
125	74 (188)	39 (99)	47 (120)	10 (26)	72 (183)	20 (51)	10 (26)	8 (21)	22 (56)	20 (51)	18 (46)	12 (31)
150	74 (188)	39 (99)	48 (122)	12 (31)	72 (183)	20 (51)	10 (26)	8 (21)	22 (56)	20 (51)	18 (46)	12 (31)
170	86 (219)	48 (122)	48 (122)	12 (31)	77 (196)	20 (51)	10 (26)	11 (28)	22 (56)	20 (51)	20 (51)	12 (31)
200	86 (219)	48 (122)	48 (122)	12 (31)	77 (196)	20 (51)	10 (26)	11 (28)	22 (56)	20 (51)	20 (51)	12 (31)

Model VPT, VCS and VCT

Size	A	B	B1	B2	B3	C1	C1 ^A	C2	C3 ^B	D1	D2	E
	in. (cm)	in. (cm)	in. (cm)	in. (cm)	in. (cm)	in. (cm)	in. (cm)	in. (cm)	in. (cm)	in. (cm)	in. (cm)	in. (cm)
60	74 (188)	29 (74)	41 (105)	8 (21)	58 (148)	6 (16)	3 (8)	8 (21)	22 (56)	8 (21)	14 (36)	10 (26)
80	74 (188)	29 (74)	41 (105)	8 (21)	58 (148)	6 (16)	3 (8)	8 (21)	22 (56)	8 (21)	14 (36)	10 (26)
100	74 (188)	32 (82)	41 (105)	10 (26)	63 (160)	6 (16)	3 (8)	8 (21)	22 (56)	8 (21)	16 (41)	10 (26)
125	74 (188)	39 (99)	47 (120)	10 (26)	72 (183)	6 (16)	3 (8)	8 (21)	22 (56)	20 (51)	18 (46)	10 (26)
150	74 (188)	39 (99)	48 (122)	12 (31)	72 (183)	6 (16)	3 (8)	8 (21)	22 (56)	20 (51)	18 (46)	10 (26)
170	86 (219)	48 (122)	48 (122)	12 (31)	77 (196)	6 (16)	3 (8)	11 (28)	22 (56)	20 (51)	20 (51)	10 (26)
200	86 (219)	48 (122)	48 (122)	12 (31)	77 (196)	6 (16)	3 (8)	11 (28)	22 (56)	20 (51)	20 (51)	10 (26)

^A Clearances when system is fitted with end caps.

^B Use "C3" dimension for clearances above uncovered "L" or "U" tubes.



Heater Configurations

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			✓					✓	✓	✓		✓	

^A For use with natural gas only

TYPICAL HEATER CONFIGURATIONS

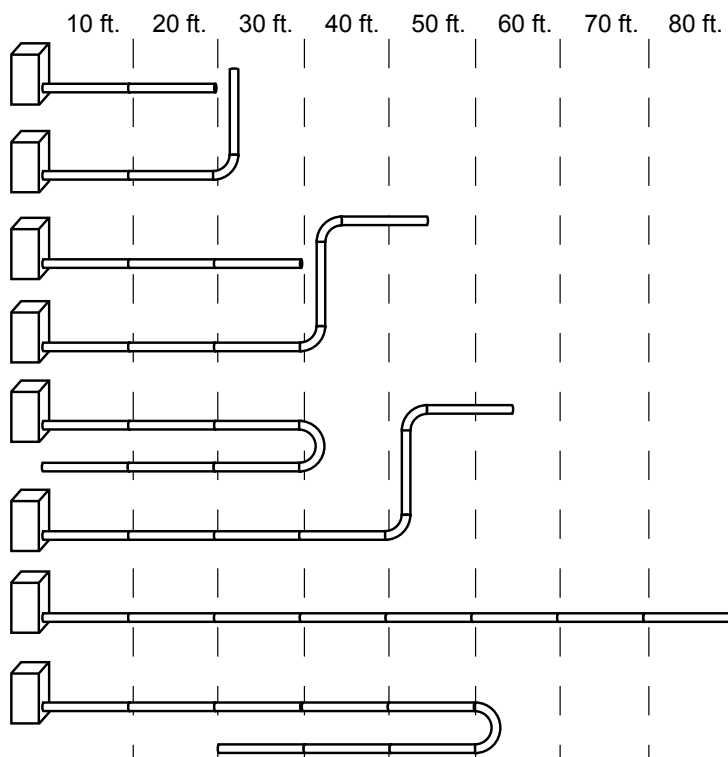
The following sketches are representative of various ways the tubular, radiant heaters can be configured. It is important to follow the limitations listed in the note section below and the table above. Alternate configurations are available. Some configurations are limited to single stage heaters (Models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

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.



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

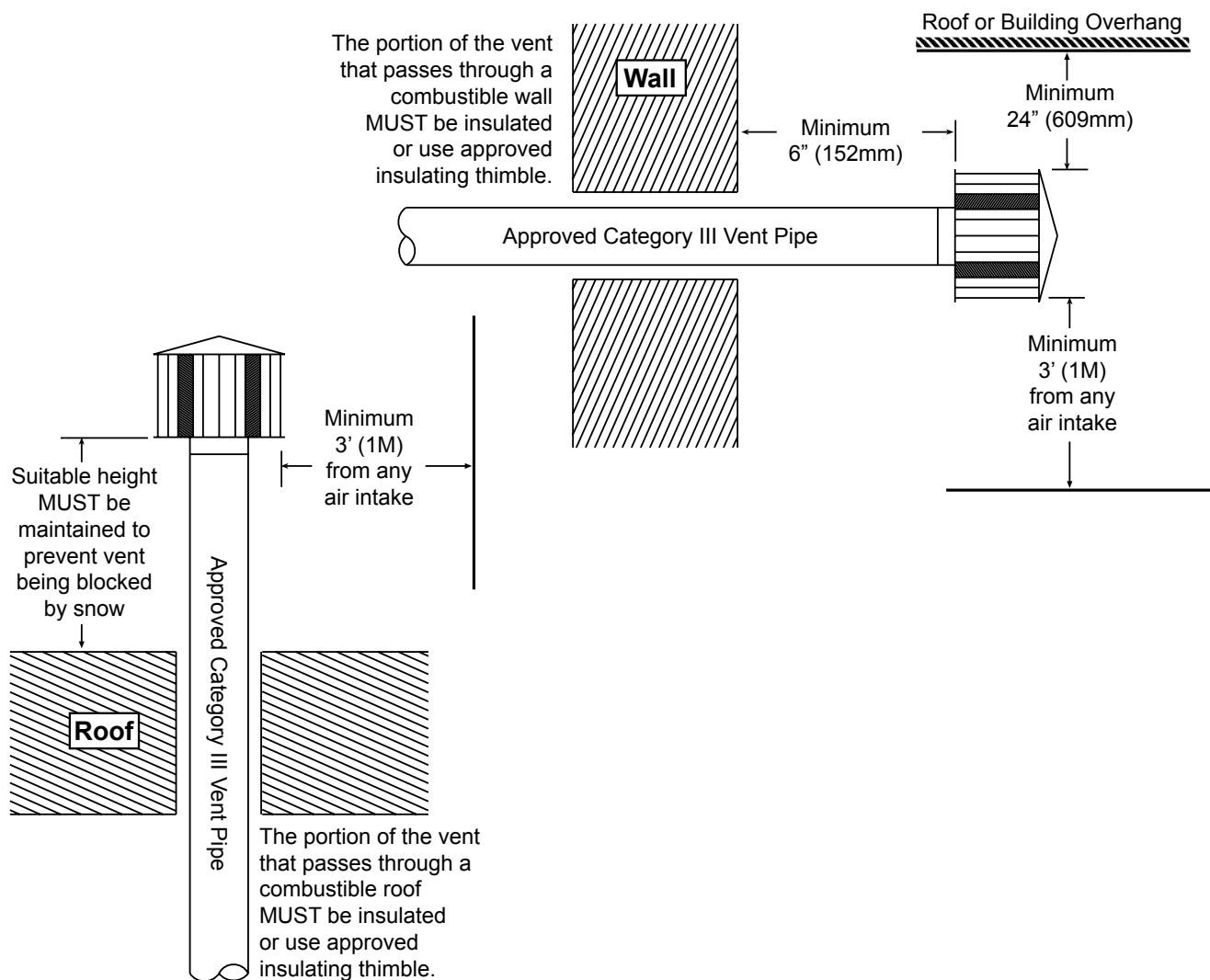
Venting

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 label (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	
in.	(mm)	ft.	(M)
4	(102)	12	(3.7)
6	(152)	25	(7.6)

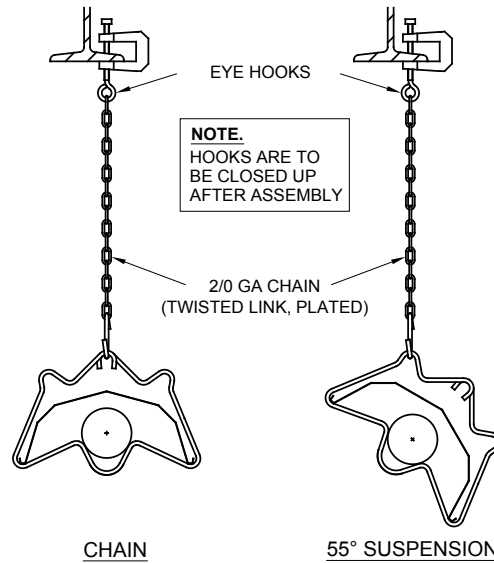


UNVENTED UNITS

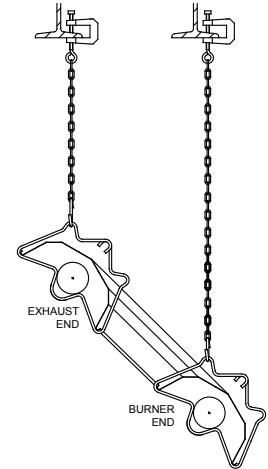
Heaters may be installed without a vent providing the applicable building codes are met and consideration is properly given to condensation on cold surfaces. Installation shall meet the following requirements when unvented:

- 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.

Installation



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



Minimum and Recommended Mounting Heights

Feet (Meters)

Size	Standard		Angled	
	min	recommended	min	recommended
ft (M)	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)

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 stainless steel tube assemblies, specify Model VC-_. See selection matrix on next page.

Model VP-	A	B	C	D	E	H	U	L
Part Number	270270	270271	270272	270273	270274	270275	270276	270277
Ship Weight (lbs.)	26	39	39	26	39	7	13	10
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
10 foot reflectors	2	3	3	2	3	-	-	-
5 foot reflector	-	-	-	-	-	1	-	-
Corner reflector(s)	-	-	-	-	-	-	2	1
Tube coupler(s)	1	2	2	2	3	1	1	1
Suspension bracket(s)	2	3	3	2	3	1	1	1
Reflector support bracket assembly(ies)	2	3	3	2	3	1	1	-

Model VC-	AS	BS	HS	US	LS
Part Number	270280	270281	270282	270283	270284
Ship Weight (lbs.)	29	44	10	17	10
10 foot stainless steel tube(s)	2	3	-	-	-
5 foot stainless steel heat exchanger	-	-	1	-	-
Stainless steel "U" tube	-	-	-	1	-
Stainless steel "L" tube	-	-	-	-	1
10 foot stainless steel reflectors	2	3	-	-	-
5 stainless steel foot reflector	-	-	1	-	-
Stainless steel corner reflector(s)	-	-	-	2	1
Stainless steel tube coupler(s)	2	3	1	1	1
Stainless steel suspension bracket(s)	2	3	1	1	1
Stainless steel reflector support bracket assembly(ies)	2	3	1	1	-

Tube Packages (cont'd)

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 or part numbers.

The table below shows which tube packages should be ordered for various system lengths. Please contact your factory representative for assistance.

Note: VP series in sizes 170 & 200 units require two Calcoat™ tubes.

Single-Stage Heaters - Models VPS and VCS

Single-Stage	60	80	100	125	150	170	200	U	L
System Length (ft)	20	VP-A	VP-A	■	■	■	■	VP-U	VP-L
	30	VP-B	VP-B	VP-B	■	■	■	VP-U	VP-L
	40	VP-A and VP-D	VP-A and VP-D	VP-A and VP-D	VP-A and VP-D	VP-A and VP-D	■	VP-U	VP-L
	50	■	■	VP-A and VP-E	VP-A and VP-E	VP-A and VP-E	VP-C and VP-D	VP-U	VP-L
	60	■	■	■	VP-B and VP-E	VP-B and VP-E	VP-C and VP-E	VP-U	VP-L
	70	■	■	■	■	VP-B and (2) VP-D	VP-C and (2) VP-D	VP-U	VP-L
	80	■	■	■	■	■	VP-C, VP-D and VP-E	VP-U	VP-L
Single-Stage	60	80	100	125	150	170	200	U-S	L-S
System Length (ft) (300 Series Stainless Steel)	20	VC-AS	VC-AS	■	■	■	■	VC-US	VC-LS
	30	VC-BS	VC-BS	VC-BS	■	■	■	VC-US	VC-LS
	40	(2) VC-AS	(2) VC-AS	(2) VC-AS	(2) VC-AS	(2) VC-AS	■	VC-US	VC-LS
	50	■	■	VC-AS and VC-BS	VC-AS and VC-BS	VC-AS and VC-BS	VC-AS and VC-BS	VC-US	VC-LS
	60	■	■	■	(2) VC-BS	(2) VC-BS	(2) VC-BS	VC-US	VC-LS
	70	■	■	■	■	(2) VC-AS and VC-BS	(2) VC-AS and VC-BS	VC-US	VC-LS
	80	■	■	■	■	■	VC-AS and (2) VC-BS	VC-US	VC-LS

Two-Stage Heaters - Models VPT and VCT

2-Stage	60	80	100	125	150	170	200	U	L
System Length (ft)	30	VP-B	VP-B	VP-B	VP-B	■	■	VP-U	VP-L
	40	VP-A and VP-D	VP-A and VP-D	VP-A and VP-D	VP-A and VP-D	■	■	VP-U	VP-L
	50	■	■	■	VP-A and VP-E	VP-A and VP-E	VP-C and VP-D	VP-U	VP-L
	60	■	■	■	■	VP-B and VP-E	VP-C and VP-E	VP-U	VP-L
	70	■	■	■	■	■	VP-C and (2) VP-D	VP-U	VP-L
2-Stage	60	80	100	125	150	170	200	U-S	L-S
System Length (ft) (300 Series Stainless Steel)	30	VC-BS	VC-BS	VC-BS	VC-BS	■	■	VC-US	VC-LS
	40	(2) VC-AS	(2) VC-AS	(2) VC-AS	(2) VC-AS	(2) VC-AS	■	VC-US	VC-LS
	50	■	■	■	VC-AS and VC-BS	VC-AS and VC-BS	VC-AS and VC-BS	VC-US	VC-LS
	60	■	■	■	■	(2) VC-BS	(2) VC-BS	VC-US	VC-LS
	70	■	■	■	■	■	(2) VC-AS and VC-BS	VC-US	VC-LS

NOTE:

The minimum and maximum length are shown for each burner box. A five 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.

Tube Packages (cont'd)

BURNER INSERT AND TURBULATORS

Burner insert and turbulators alter the gas flow inside the radiant tubes and increase overall efficiency of the heaters. See the manual for installation instructions.

Option HDT5 burner insert is installed at the leading end of the tube system (next to the burner box).

Option HDT6 turbulator is installed at the trailing end of the tube system (next to the exhaust vent). It consists of a ribbon and a panel with openings to direct the exhaust gas.

Option HDT7 turbulator is also installed at the trailing end of the tube system (next to the exhaust vent). It consists of a metal ribbon.

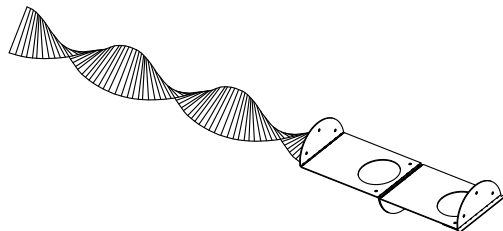
Burner insert and turbulators shown below **MUST** be used with the size/length combinations and configurations listed in the chart below. Failure to use these configurations will void the warranty.

Model	Fuel	Size	Length	Configuration	HDT5	HDT6	HDT7
Single-Stage	Natural Gas	80	20	Straight	✓		
			30	Straight	✓		
			40	Straight	✓		
		100	30	Straight	✓		
			40	Straight	✓		
			50	Straight	✓		
	Propane	60	20	Straight		✓	
		80	20	Straight		✓	
	Natural Gas	80	20	U Bend	✓		
			40	U Bend	✓		
		100	40	U Bend	✓		
Two-Stage	Natural Gas	60	20	Straight	✓	✓	
			30	Straight	✓		
			40	Straight	✓		
		80	30	Straight	✓		
			40	Straight	✓		
			30	Straight	✓		✓
		100	40	Straight	✓		
			30	Straight			✓
		125	30	Straight			✓
		150	40	Straight			✓
	Propane	60	20	Straight		✓	
		100	30	Straight			✓
		125	30	Straight			✓
		150	40	Straight			✓
							✓
	Natural Gas	60	20	U Bend	✓		
			40	U Bend	✓		
		80	40	U Bend	✓		
		100	40	U Bend	✓		

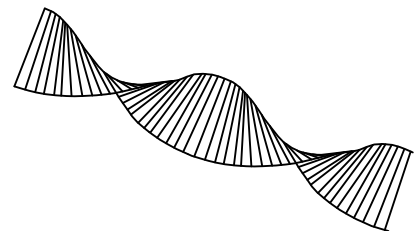
Option HDT5 Burner Insert- 5 ft (1,524mm)



Option HDT6 Turbulator - 4 ft 3 in (1,277mm)



Option HDT7 Turbulator - 8 ft 6 in (2,600mm)



Sample Specifications

VP SERIES - POSITIVE PRESSURE RADIANT HEATERS

HEATING SPECIFICATIONS

Provide Model VP_ gas-fired tubular radiant heaters. The heaters shall be the 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.

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) (300 series stainless steel) 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 HEATERS

HEATING SPECIFICATIONS

Provide Model VC_ gas-fired tubular radiant heaters. The heaters shall be the 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.

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 300 series stainless steel 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.)

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.)



We Encourage
Professionalism



Through Technician
Certification by NATE



HRAI
YOUR ENVIRONMENT • OUR EXPERTISE
✓ MEMBER COMPANY

GENERAL TERMS OF LIMITED WARRANTY

NORDYNE will furnish a replacement for any part of this product which fails in normal use and service in accordance with the terms of the warranty.

For complete details of the Limited Warranty, including applicable terms and conditions, see your local installer or contact the NORDYNE warranty department for a copy.

NORDYNE

COMPLETE COMFORT. GENUINE VALUE. 8000 Phoenix Parkway | O'Fallon, MO 63368-3827

Specifications and illustrations subject to change without notice and without incurring obligations. Printed in U.S. A. (12/2014)

275E-1214

VCS-VCT-VPS-VPT Radiant Heaters tsl