

Infrared Heating Catalog

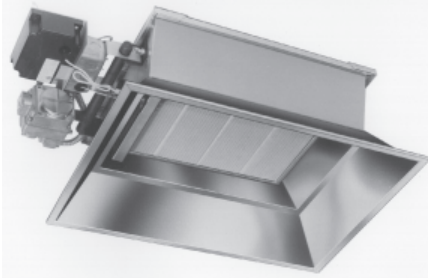
INFRA-REZ® HEATER Low-Intensity Infrared
 Model TRP - Packaged Tubular Radiant Heater



Model TR - Modular Tubular Radiant Heater



High-Intensity Infrared
 Model RIH/RIHV - Surface Combustion Radiant Heaters



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

TABLE OF CONTENTS

Page No.

LOW INTENSITY INFRARED

Indoor/Outdoor Packaged System

Description/Standard Features/Technical Data	2
Dimensional Data/Location Information	3
Sample Specification	4
Limited Warranty	5

Indoor Modular System

Description/Standard Features	6
Optional Features/Technical/Dimensional Data	7
Engineering/Application Data:	

Clearances to Combustibles	8
Location and Mounting Height	8
Venting	9
Heater Configurations	10

Option Information:

“L” Tube Heat Exchanger	10
“U” Tube Heat Exchanger	10
High Altitude	11
Five-Foot Heat Exchanger Tubes	11
Dual Venting	11
Outside Combustion Air	12
Reflector Gap Covers	12
Reflector End Covers	12
Side Shields	12

Packaging Scheme	13
Installation/Assembly	14
Sample Specifications	15
Warranty	15

HIGH INTENSITY INFRARED

Description/Standard and Optional Features	16
Technical/Dimensional Data/Clearances	17

Engineering/Application Data:

Mounting Location	18
Chain Hanging Kit	19
Sample Specifications	19
Warranty	20

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. For more detailed information on the technical applications of heating with infrared, consult the Infrared Heating Handbook. If unsure of a particular application, consult your Reznor Sales Representatives.

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.



TRP Gas-Fired Packaged Tubular Radiant, Low Intensity Heaters for Indoor/Outdoor Commercial-Industrial Use



ANSI Z83.6



CAN/CGA 2.16

WARNING: Gas-fired appliances are not designed for use in hazardous atmospheres containing flammable vapors or combustible dust, or atmospheres containing chlorinated or halogenated hydrocarbons. Installations in public garages or airplane hangars are permitted when in accordance with ANSI Z83.6B and NFPA-406 and 88 Codes or CAN-B149 Codes and enforcing authorities.

NOTE: Not certified for residential use.

Description

The INFRA-REZ® heater Model TRP packaged tubular radiant heaters are available in BTUH inputs from 30,000 to 100,000. All sizes are available for use with natural or propane gas. Model TRP heaters provide full input rate heating capacity to 2,000 feet elevation. INFRA-REZ® tubular radiant heaters are engineered to provide quiet, reliable, energy-efficient comfort heating for both spot and space applications.

The Model TRP heater is designed with a burner/control box housing an inshot burner(s) and controls. The burner is equipped with a blower for supplying combustion air and a direct spark burner ignition (DSI) system. Controls in the box include an ignition control board, a pressure switch to verify combustion airflow, and a redundant single-stage gas valve.

A series of highly emissive tubes with polished reflectors provide for the transfer of radiant heat. For maximum efficiency, the exhaust end of all systems is equipped with an aluminized steel turbulator strip.

Combustion air can either come from the heated space or, when a system is specified to use outside air, it can be piped from the outside through a separated combustion air/vent system. The following applications require outside combustion air: (1) if the building atmosphere has negative pressure; (2) if the building atmosphere is dirty or

dusty; (3) if the building atmosphere contains substances that will cause toxic gas when combined with flame or flue products; or (4) if the heater is being installed in a tightly closed room that does not provide required air for combustion.

Venting to the outdoors may be either vertical or horizontal. Dual venting of two units is permissible when using a specially designed optional Dual Vent Kit. In suitable applications, Model TRP systems may be operated with an indoor vent cap. When the unit includes a weatherizing option, it may be installed in outside areas such as courtyards or patios.

The Model TRP tubular packaged heater systems are shipped in a single package that does not require field assembly. (Sizes 50 and 100 are hinged for packaging and handling purposes.) Standard features such as built-in hangers for chain suspension, crimped tube connections, and a terminal board for thermostat connection are designed to facilitate installation.

These tubular radiant packaged heaters are approved for use in the United States and Canada by the Canadian Standards Association (CSA). The manufacturer provides a five-year limited warranty on the burner and a ten-year limited warranty on all tubes. (See Warranty Form for terms and limitations.)

Standard Features:

- Natural gas operation
- Full input rate for elevation to 2000 ft
- Inshot burner(s)
- Direct spark ignition with 100% lockout
- Integrated circuit board with LED diagnostic indicator light
- Single-stage combination gas valve
- Differential air pressure switch to verify combustion airflow
- Post purge
- 115/1/60 supply voltage
- Grounded, plug-in cord
- 24-volt control voltage transformer
- Terminal board for thermostat connection
- 16-gauge aluminized steel tubes with a high emissivity coating
- Polished aluminum reflectors
- Aluminized steel flue gas turbulators
- Built-in suspension hangers
- Sight glass for burner observation
- Hinged burner/control box access door with latches
- Horizontal or vertical venting

Optional Features - Factory Installed

- Propane gas operation
- High altitude derate (2001-9000 ft)
- Separated combustion
- Weatherized for outdoor installation

Technical Data

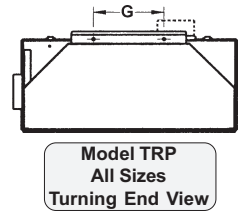
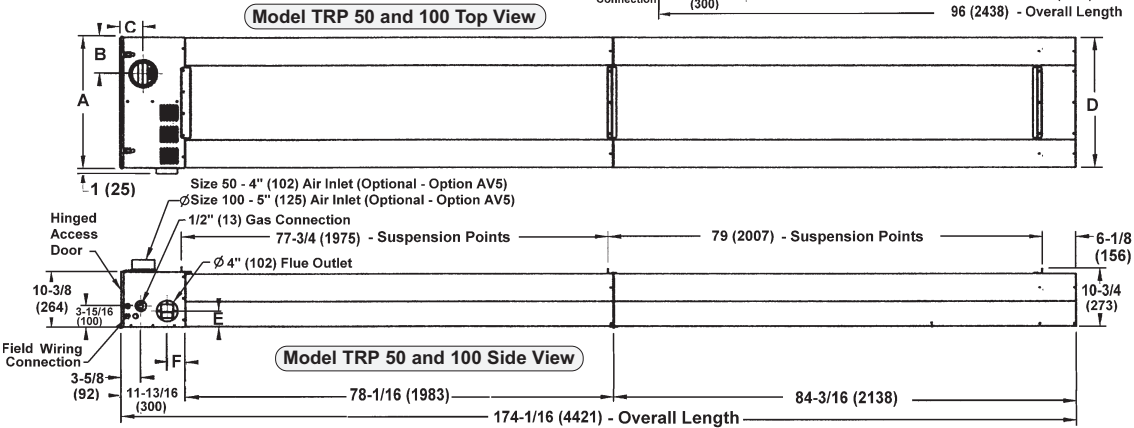
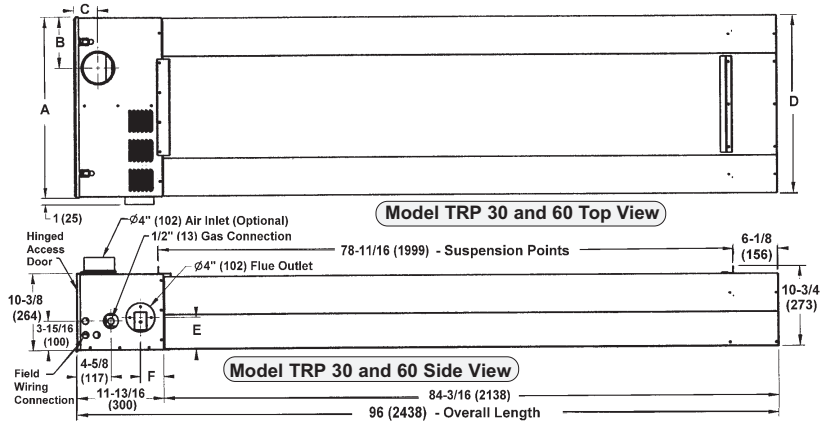
Size	30		50		60		100		
Heating Input - BTUH (kW)	30,000	9	50,000	15	60,000	18	100,000	29	
Gas Supply Pressure - in W.C. (kPa)	Natural	4.5-14	1.1 - 3.5	4.5-14	1.1 - 3.5	4.5-14	1.1 - 3.5	4.5-14	1.1 - 3.5
	Propane	11 - 14	2.7 - 3.5	11 - 14	2.7 - 3.5	11 - 14	2.7 - 3.5	11 - 14	2.7 - 3.5
Gas Manifold Pressure - in. W.C. (kPa)	Natural	3.5	0.9	3.5	0.9	3.5	0.9	3.5	0.9
	Propane	10	2.5	10	2.5	10	2.5	10	2.5
Voltage/Phase	115/1		115/1		115/1		115/1		
Frequency (Hz)	60		60		60		60		
Full-Load Amps (115 volt)	1.5		1.5		1.5		1.5		
Gas Connection (inches) - Natural or Propane Gas	1/2		1/2		1/2		1/2		
Vent Outlet Diameter - inches (mm)	4	(100)	4	(100)	4	(100)	4	(100)	
Approximate Net Wt - lbs. (kg)	85	(39)	130	(59)	110	(50)	180	(82)	
Approximate Shipping Wt - lbs. (kg)	100	(45)	160	(73)	125	(57)	210	(95)	

Accessories - Field Installed

- Vent Cap
- Side Shield
- Dual Vent Kit
- Thermostat
- Turnbuckles
- Flexible Gas Connector
- Gas Conversion Kit

Dimensions, inches ± 1/8" (millimeters ± 3mm)

	30	50	60	100
A	18-3/8 (467)	18-3/8 (467)	24-3/8 (619)	24-3/8 (619)
B	2-5/8 (67)	2-5/8 (67)	6-7/8 (175)	6-7/8 (175)
C	3-1/4 (83)	3-1/4 (83)	3-1/4 (83)	4-1/4 (108)
D	18 (457)	18 (457)	24 (610)	24 (610)
E	4-3/8 (111)	4-3/8 (111)	4-3/8 (111)	3 (76)
F	3-1/8 (79)	3-1/8 (79)	3-1/8 (79)	3-3/8 (86)
G	6 (152)	6 (152)	8 (203)	8 (203)



Clearances to Combustibles - Required clearances depend on the mounting angle, whether the unit is vented or unvented, and/or the addition of an optional side shield. The side shield is a field-installed modular shield that hangs vertically on the "rear" side along the entire length of the system. Refer to the illustration below to define clearances. These clearances are installation requirements. In addition, ANSI Z223-1, Section 6.18, requires that signs be posted specifying the maximum permissible stacking height for material stored below the heater.

Model TRP	Clearances to Combustibles (inches and millimeters)						Mounting Angle	Minimum Mounting Height
	Top	Sides (Front and Rear)		Below	Burner End	Turning End		
		Horizontal	Angled OR Horizontal with a Side Shield					
All Sizes	Vented - 6" (152mm) Unvented - 24" (610mm)	Front - 24" (610 mm) Rear - 24" (610 mm)	Front - 60" (1524mm) Rear - 12" (305mm)	72" (1829)	24" (610)	18" (457)	0 - 45°	8 ft (2.4 M)

Indoor, Horizontal, Vented	Indoor, Angled to 45°, Vented	Indoor, Horizontal, Unvented or Weathered for Outdoors

Model TRP - Horizontal to 45°, Vented or Unvented, Indoors or Outdoors	
---	--

Location Recommendations for Efficient Application

- When selecting the installation location, major factors to consider are (1) Personal and Property Safety; (2) Personal Comfort; and (3) Heating Efficiency. Because of the unique features of radiant heat transfer, selecting the most efficient location for infrared equipment depends on the "floor" coverage of the emitted heat rays. Floor coverage distance can be figured as approximately two times the mounting height of the unit. However, comfort level heating depends on the infrared intensity and on the balance of the radiant emission over the length of the system. Infrared intensity decreases with high mounting heights and greater floor coverage.

- **For space heating** infrared application, the location of the units must be evaluated as part of the heater size selection. Determine the total BTU's required, the floor coverage required, and the mounting height. From this information, design a heater size and location plan that will provide the most complete floor coverage without excessive overlapping. In most cases, perimeter heaters should be located parallel to the wall. The distance from the wall is determined by whether the heaters will be angled or horizontal.
- **For spot heating** application, the tubular system should be located to direct the rays toward the area requiring heat. Depending on the installation, this can be done either from directly overhead or with the heater angled from the side. Use the mounting height, the size of heater, and the application conditions to determine the most efficient location for the heater.

Sample Specifications

INFRA-REZ® HEATER Model TRP Packaged Tubular Radiant Heaters

Provide packaged, gas-fired, tubular radiant heaters manufactured as Reznor brand units. The heaters shall be Model TRP Series. Heaters shall be used for indoor (outdoor) application.

The heater(s) shall be shipped complete in (a) single package(s) (each) and will require minimum field assembly.

Units shall be equipped with built-in hangers and chain for suspension; hinged door; crimped tube connections; sight glass for observing flame; a grounded, plug-in 115V cord; and a terminal board for thermostat connection.

Provide radiant tubular heaters with a burner/control box housing inshot burner(s) and controls.

Size 30,000 - 100,000 BTUH units shall be equipped for use with natural (propane) gas and 115/1 volt supply voltage and will operate at elevations to 2,000 ft. The burner shall be equipped with a blower, for supplying combustion air, and a direct spark burner ignition (DSI) system.

Controls in the box shall include an ignition control board with LED diagnostic indicator light, a 24V transformer, a pressure switch to verify combustion airflow, a venter motor and wheel assembly, and a redundant single-stage gas valve.

Gas connection must be with field-supplied expansion coil or approved flexible connector.

The tubular system shall be composed of highly emissive tubes with polished reflectors provided for the transfer of radiant heat. The exhaust end of the system shall be equipped with an aluminized steel turbulator strip.

Combustion air shall be supplied from the heated indoor space (separated combustion system with outside combustion air inlet/vent concentric adapter and terminals).

The venting arrangement shall be such that the unit shall be vented vertically through the roof (horizontally through a side wall; vented to the indoor space; two units shall be vented through the same flue with the use of a dual vent kit; separated combustion air inlet/vent concentric adapter with terminals for horizontal or vertical venting). Horizontal reflectors may include optional side shield.

These units must be approved for use 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, illustration, and additional field-installed options as described in this catalog.)

Limited Warranty

INFRA-REZ® HEATER Model TRP Tubular Radiant Heaters

Reznor warrants to the original owner-user that this Reznor product will be free from defects in material or workmanship. This warranty is limited to twelve (12) months from the date of original installation, whether or not actual use begins on that date, or eighteen (18) months from date of shipment by Reznor, whichever occurs first.

Extended Limited Warranty

Extended 9-year, non-prorated, limited warranty on all tubes.

Extended 4-year, non-prorated, limited warranty on the burner and all electrical and mechanical operating components.

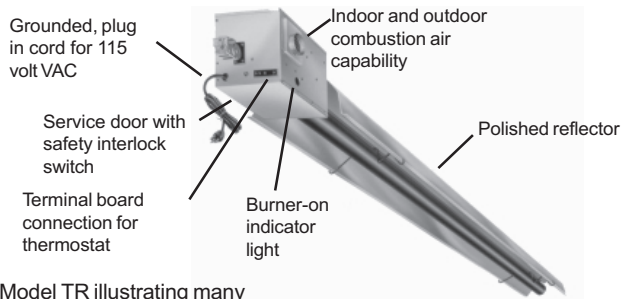
Limitations and Exclusions

Thomas & Betts Corporation's obligation under this warranty is limited to repair or replacement at its manufacturing facility of any part or parts of this Reznor product identified by model or serial number which shall be returned to Thomas & Betts Corporation with transportation charges prepaid and which the manufacturer's examination shall disclose to its satisfaction to be defective. Reznor parts or products will not be accepted at the manufacturing facility without an attached Return Materials Tag. Repaired or replacement parts will be shipped by the Thomas & Betts Corporation facility, F.O.B. shipping point.

1. This warranty does not cover labor or other costs incurred in repairing, removing, installing, servicing, or handling of parts or complete products.
2. This warranty will not apply if the input to the product exceeds the rated input as indicated on the nameplate by more than 5%, or if the product in the judgment of the manufacturer has been subjected to misuse, negligence, accident, corrosive atmospheres, atmospheres containing any contaminant (silicone, aluminum oxide, etc.), excessive thermal shock, physical damage, impact, abrasion, unauthorized alterations, or operation contrary to the manufacturer's printed instructions, or if the serial number has been altered, defaced or removed.
3. Thomas & Betts Corporation shall not be liable for any default or delay in performance of its warranty obligations hereunder caused by any circumstances beyond its control, including but not limited to judicial or government restrictions or restraints, strikes, fires, floods, or reduced supplies of raw materials, energy, or parts.
4. To the maximum extent provided by law, Thomas & Betts Corporation will not be liable for any loss, damage, cost of repair, or incidental or consequential damages of any kind in connection with the sale, use, or repair of any Reznor products. **THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS AND IMPLIED, AND THOMAS & BETTS CORPORATION DISCLAIMS ALL OTHER EXPRESS WARRANTIES AND ALL IMPLIED WARRANTIES INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE.** No person is authorized to assume for Thomas & Betts Corporation any other warranty, obligation, or liability.

REZNOR

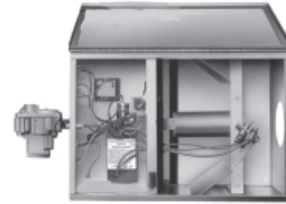
TR Gas-Fired Tubular Radiant, Low Intensity Heater for Indoor Commercial-Industrial Use



Model TR illustrating many standard features.

24 volt controls

Spark-ignited intermittent safety pilot with electronic flame supervision



Differential air pressure switch to verify combustion air flow



NOTE: Not approved for residential use.

DESCRIPTION

The INFRA-REZ[®] heater Model TR tubular radiant heaters are available in BTUH inputs of 50,000 to 200,000 and in tube lengths from 20 to 70 feet (see the Technical Data Table for BTUH/length combinations). All sizes are available for use with natural gas; optional propane gas operation is available on units with BTUH input from 50,000 through 150,000. Model TR heaters provide full input rate heating capacity to 2,000 feet elevation. High altitude, full input rate is available on all sizes for elevations to 6,000 ft. and to 8,000 ft. for all units with BTUH input from 50,000 through 175,000. INFRA-REZ[®] tubular radiant heaters are engineered to provide quiet, reliable, energy-efficient, comfort level heating for both spot and space applications.

The INFRA-REZ[®] heater is designed with a burner/control box housing a power burner that fires into a 4" diameter tube, 20 to 70 feet in length. The burner is equipped with a blower for supplying combustion air and a spark-to-pilot-to-main burner ignition system. Controls include a redundant single-stage combination gas valve, a post purge relay, and a pressure switch to verify combustion air flow. A safety interlock switch prevents operation of the heater when the burner/control box service door is open.

The highly emissive tubes are in 10-foot sections with each section having a polished reflector. The tube attached to the burner is the combustion chamber, center sections are heat exchanger tubes, and the exhaust end tube is the tail pipe. The standard configuration is straight, but optional "L" shaped, "U" shaped and 5-foot straight heat exchanger tubes are available to change the 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. For maximum efficiency, the exhaust end of all systems is equipped with an aluminized steel turbulator strip. Combustion air can either come from the heated space or be piped from the outside. Outside combustion air should be supplied (1) if the building atmosphere has negative pressure; (2) if the building atmosphere is dirty or dusty; (3) if the building atmosphere contains substances that will cause toxic gas when combined with flame or flue products; or (4) if the heater is being installed in a tightly closed room that does not provide required air for combustion.

Venting may be either vertical or horizontal. Dual venting of two units is permissible when using a Reznor Optional Dual Vent Kit.

The INFRA-REZ[®] tubular heater systems are shipped in modular packages requiring field assembly and installation. Standard features, such as built-in hangers for chain suspension, slip-fit tube connections (U.S. Patent No. 5,460,415), 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). Reznor provides a five-year limited warranty on the burner and a ten-year limited warranty on all tubes.

STANDARD FEATURES

- Natural gas operation
- Full input rate for elevations to 2,000 ft. - Model TR
- 115/1 supply voltage
- 24-volt controls
- Spark-ignited, intermittent safety pilot with electronic flame supervision
- Redundant single-stage combination gas valve
- Post purge
- Differential air pressure switch to verify combustion air flow
- Burner-on indicator light
- Sight glass for burner and pilot flame observation
- Terminal board connection for thermostat
- Grounded, plug-in cord for 115 VAC
- Service door with safety interlock switch
- 14-gauge aluminized steel combustion chamber (10 ft. length)
- High emissivity radiant tubes, 116-gauge HRS (10 ft. lengths)
- Slip-fit tube connections (U.S. Patent No. 5,460,415)
- Built-in suspension hangers
- Polished reflectors (10 ft. lengths)
- Aluminized steel flue gas turbulators for maximum efficiency
- Indoor or outdoor combustion air capability
- Horizontal or vertical venting
- Vent Cap (standard on Canadian units only)

Infrared Heaters for Commercial-Industrial Use

OPTIONAL FEATURES - Factory Installed

- Propane gas (Models 50 - 150)
- 208/1 Supply Voltage (Models 50 - 150)
- 230/1 Supply Voltage (Models 50 - 150)
- Timed Lockout Ignition System (included with propane units)
- Vent Cap packed in burner carton (standard on Canadian units)
- High altitude Model TR with full input rate for elevations from 2001 to 6000 ft. (Models 50 - 200) and 6001 to 8000 ft. (Models 50 - 150)

**Technical data for these options is found elsewhere in this catalog.

TECHNICAL DATA

Model No.	50-20	50-30	*75-20	75-30	75-40	100-30	100-40	100-50	125-40	125-50	150-50	150-60	175-50	175-60	175-70	200-50	200-60	200-70	
Heating Capacity	kW		22.0		29.3		36.6		44.0		51.3		58.6						
Input	BTUH		75,000		100,000		125,000		150,000		175,000		200,000						
No. of 10-ft (3m) Tubes	2	3	2	3	4	3	4	5	4	5	5	6	5	6	7	5	6	7	
Gas Supply Pressure	Natural	mbar	11.2 - 34.9		11.2 - 34.9		11.2 - 34.9		11.2 - 34.9		11.2 - 34.9		14.9 - 34.9		14.9 - 34.9				
	Propane	"w.c."	4.5"-14"		4.5"-14"		4.5"-14"		4.5"-14"		4.5"-14"		6"-14"		6"-14"				
Gas Manifold Pressure	Natural	mbar	8.72		8.72		8.72		8.72		8.72		12.5		12.5				
	Propane	"w.c."	3.5"		3.5"		3.5"		3.5"		3.5"		5"		5"				
Voltage/Phase			115/1		115/1		115/1		115/1		115/1		115/1		115/1				
	Frequency (hertz)		60		60		60		60		60		60		60				
Maximum Amps		3.0		3.0		3.0		3.0		3.0		3.0		3.0					
Net Weight	lbs	125	161	125	161	200	161	200	236	200	236	236	275	236	275	311	236	275	311
	kg	57	73	57	73	91	73	91	107	91	107	107	125	107	125	141	107	125	141
Ship Weight	lbs	152	188	152	188	247	188	247	283	247	283	283	342	286	342	378	283	342	378
	kg	69	85	69	85	112	85	112	128	112	128	128	155	130	155	171	128	155	171

* A Model TR/TR-H 75-20 is C.G.A. approved in "U" configuration only; Option UB3, "U" - shaped heat exchanger tube, is required.

DIMENSIONS

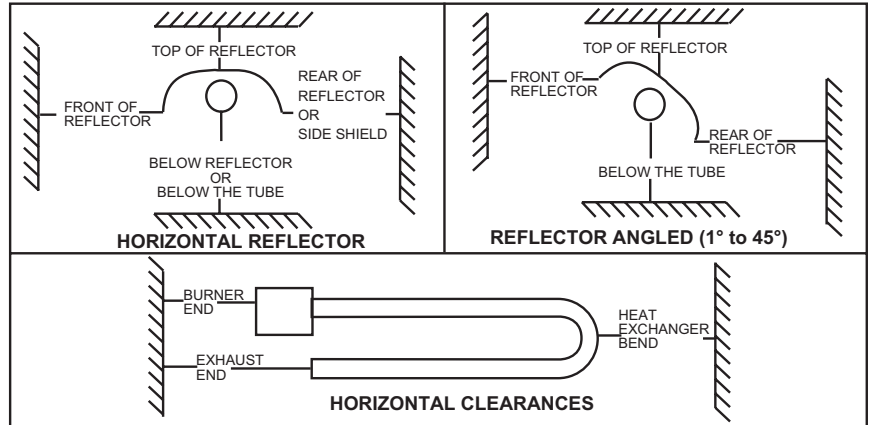
SIZE	*ALTITUDE OF THE INSTALLATION SITE		DIMENSIONS			
	Meters	Feet	A		B	
			mm	inches	mm	inches
50	0 - 2,400	0 - 8,000	89	3 1/2	122	4 13/16
	75	0 - 2,400	0 - 8,000	89	3 1/2	122
100	0 - 2,400	0 - 8,000	89	3 1/2	122	4 13/16
	125	0 - 600	0 - 2,000	89	3 1/2	122
150	601 - 2,400	2,001 - 8,000	84	3 5/16	133	5 7/32
	175	0 - 2,400	0 - 8,000	89	3 1/2	122
200	0 - 1,800	0 - 6,000	89	3 1/2	122	4 13/16

*To install a heater above 2000 ft. elevation, that heater must either be factory-built for the required elevation or field-converted to the elevation. Check the rating plate or field-conversion label for designated allowable altitude.

REFERENCE: For suspension dimensions and drawings of all permissible configurations, see Technical Form RGM-607.

Required clearances depend on the size of the heater (BTUH input), the position of the reflector, and the addition of an optional side shield. The side shield is a field-installed, modular shield (2 pieces per 10 ft. tube length). The shield hangs vertically on the “rear” side only, along the entire length of a straight tubular system. Refer to Clearance Orientation Illustrations to define “Top”, “Below”, “Front”, and “Rear” clearances.

The clearances listed are installation requirements. In addition, ANSI Z-223.1, Section 6.18, requires that signs be posted specifying the maximum permissible stacking heights to assure that the required clearances from the heater to combustibles are maintained.



Location Recommendations for Efficient Application

When selecting the installation location, major factors to consider are (1) Personal and Property Safety, (2) Personal Comfort, and (3) Heating Efficiency. Because of the unique features of radiant heat transfer, selecting the most efficient location for infrared equipment depends on the “floor” coverage of the emitted heat rays. Floor coverage distance can be figured as approximately two times the mounting height of the unit. However, comfort level heating depends on the infrared intensity and on the balance of the radiant emission over the length of the system. Infrared intensity decreases with higher mounting heights and greater floor coverage.

IMPORTANT: Another factor when locating the heater in relation to people is that the heat emitted from the burner/combustion chamber end of a tubular infrared heater is more intense than the heat emitted from the exhaust end. Configurations including an optional “U” tube provide the best balance of radiant emission over the length of the system.

For space heating infrared applications, the location of the unit must be evaluated as part of the heater size selection. In order to select the proper heater size, determine the total BTU’s required, the floor coverage required, and the mounting height. From this information, design a heater size and location plan that will provide the most complete floor coverage without excessive overlapping. In most cases, perimeter heaters should be located parallel to the wall. The distance from the wall to the unit is determined by whether the reflectors will be angled or horizontal.

For spot heating applications, the tubular system should be located to direct the rays toward the area requiring heat. Depending on the installation, this can be done from directly overhead or reflector angled from the side. U-tube configurations are often best suited to overhead spot heating applications. Use the mounting height, the size of the heater, the heater configuration, and the application conditions to determine the most efficient location for the heater.

		CLEARANCES TO COMBUSTIBLES								
SIZE			50	75	100	125	150	175	200	
ALL HEATERS	BELOW	mm	1,676	1,676	1,676	1,981	1,981	2,134	2,134	
		In.	66	66	66	78	78	84	84	
	TOP	mm	305	305	305	305	305	305	305	
		In.	12	12	12	12	12	12	12	
	HORIZONTAL CLEARANCES	BURNER END	mm	610	610	610	762	762	762	762
			In.	24	24	24	30	30	30	30
		HEAT EXCHANGER	mm	914	914	914	1,219	1,219	1,219	1,219
			In.	36	36	36	48	48	48	48
		EXHAUST END	mm	610	610	610	610	610	610	610
			In.	24	24	24	24	24	24	24
VENT	mm	152	152	152	152	152	152	152		
	In.	6	6	6	6	6	6	6		
WITH REFLECTOR POSITIONED	0 - 30°	FRONT	mm	762	762	762	1,067	1,067	1,372	1,372
			In.	30	30	30	42	42	54	54
		REAR	mm	762	762	762	1,067	1,067	1,372	1,372
			In.	30	30	30	42	42	54	54
	31 - 45°	FRONT	mm	1,219	1,219	1,219	1,676	1,676	1,981	1,981
			In.	48	48	48	66	66	78	78
		REAR	mm	457	457	457	813	813	914	914
			In.	18	18	18	32	32	36	36
	0 - 30° WITH SIDE SHIELD	FRONT	mm	914	914	914	1,067	1,067	1,372	1,372
			In.	36	36	36	42	42	54	54
		REAR	mm	305	305	305	305	305	305	305
			In.	12	12	12	12	12	12	12

WARNING: GAS-FIRED APPLIANCES ARE NOT DESIGNED FOR USE IN HAZARDOUS ATMOSPHERES CONTAINING FLAMMABLE VAPORS OR COMBUSTIBLE DUST, OR ATMOSPHERES CONTAINING CHLORINATED OR HALOGENATED HY-

DROCARBONS. INSTALLATIONS IN PUBLIC GARAGES OR AIRPLANE HANGARS ARE PERMITTED WHEN IN ACCORDANCE WITH ANSI Z83.6B AND NFPA-408 AND 88 CODES OR CANI-B149 CODES AND ENFORCING AUTHORITIES.

Venting Requirements

INFRA-REZ® HEATER Model TR

- Compliance with National and Local Codes
- 4" Vent Pipe (24-gauge single-wall galvanized metal)
- Terminal Vent Cap
 - Units installed in the U.S.A., use Reznor vent cap or equivalent
 - Units installed in Canada., use Reznor vent cap only
- Vent Length - see table below

SINGLE WALL METAL VENT PIPE

Model No.		50					75					100					
Length	Meters	6.1	7.6	9.1	6.1	7.6	9.1	10.7	12.2	9.1	10.7	12.2	13.7	15.2			
	Feet	20	25	30	20	25	30	35	40	30	35	40	45	50			
Vent Diameter		mm	102					102					102				
		in.	4					4					4				
Vent Length	Minimum	Meters	1.5					1.5					1.5				
		Feet	5					5					5				
	Maximum	Meters	6.1	13.7			10.7	6.1	13.7	10.7	6.1						
		Feet	20	45			35	20	45	35	20						
Equivalent Length for	90° Elbow	Meters	0.9	1.8	1.5	0.9	1.8	1.5	0.9								
		Feet	3	6	5	3	6	5	3								
	45° Elbow	Meters	0.5	0.9	0.8	0.5	0.9	0.8	0.5								
		Feet	1.5	3.0	2.5	1.5	3.0	2.5	1.5								
	Dual Vent Adapter*	Meters	0.9	1.8	1.5	0.9	1.8	1.5	0.9								
		Feet	3	6	5	3	6	5	3								

Model No.		150			175					200					
Length	Meters	15.2	16.8	18.3	15.2	16.8	18.3	19.8	21.3	15.2	16.8	18.3	19.8	21.3	
	Feet	50	55	60	50	55	60	65	70	50	55	60	65	70	
Vent Diameter		mm	102			102					102				
		in.	4			4					4				
Vent Length	Minimum	Meters	1.5			1.5					1.5				
		Feet	5			5					5				
	Maximum	Meters	18.3	18.3			18.3								
		Feet	60	60			60								
Equivalent Length for	90° Elbow	Meters	3.7	3.7			3.7								
		Feet	12	12			12								
	45° Elbow	Meters	1.8	1.8			1.8								
		Feet	6.0	6.0			6.0								
	Dual Vent Adapter*	Meters	3.7	3.7			3.7								
		Feet	12	12			12								

- Vent Terminal Direction - Horizontal or Vertical
- Dual Venting - with Optional Dual Vent Kit only**
- Unvented - Approved for Unvented Operation


Factors to Consider for Unvented Operation

- Check local codes
- Fresh Air Requirements - Natural gas, 4 CFM/1000 BTUH; Propane gas, 5 CFM/1000 BTUH
- Unvented operation may cause excessive condensation
- Do not operate unvented in dusty or dirty atmosphere
- Do not operate unvented in a building where contaminants in the air will produce a toxic gas when burned or exposed to high temperature
- Do not operate unvented with outside combustion air

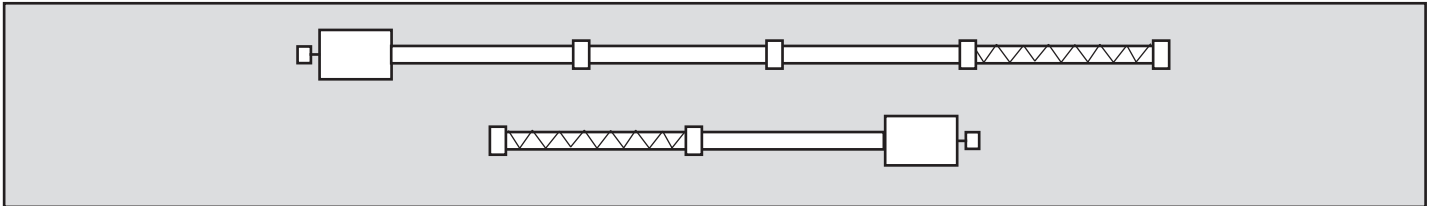
**Technical data for these options is found elsewhere in this catalog.

Heater Configurations

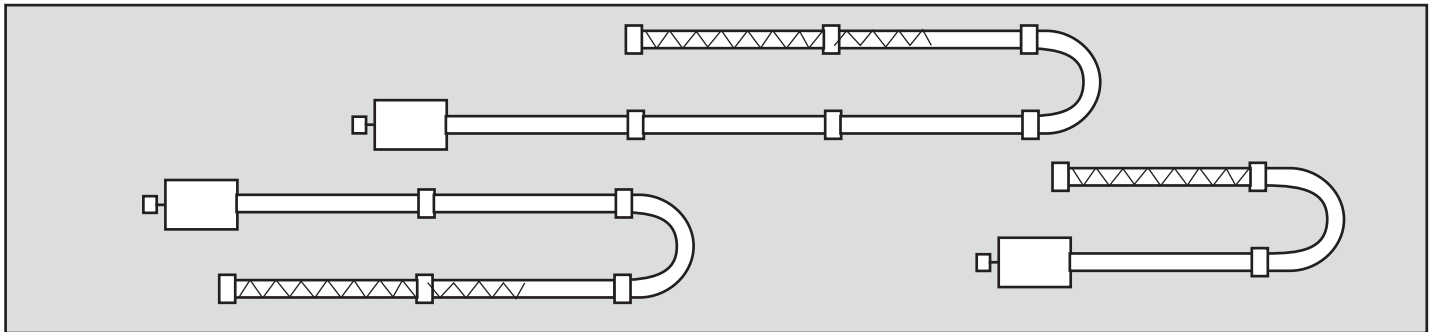
INFRA-REZ[®] HEATER Model TR

An advantage of tubular infrared heating is its versatility in configuration layout. Reznor Technical Form 607, a booklet illustrating all permissible configurations, is available for designing applications. See sample diagrams below. For even harder-to-fit areas, 5-ft. Heat Exchanger Tubes (Option UA1) are available. All configurations require a modular turbulator strip ().

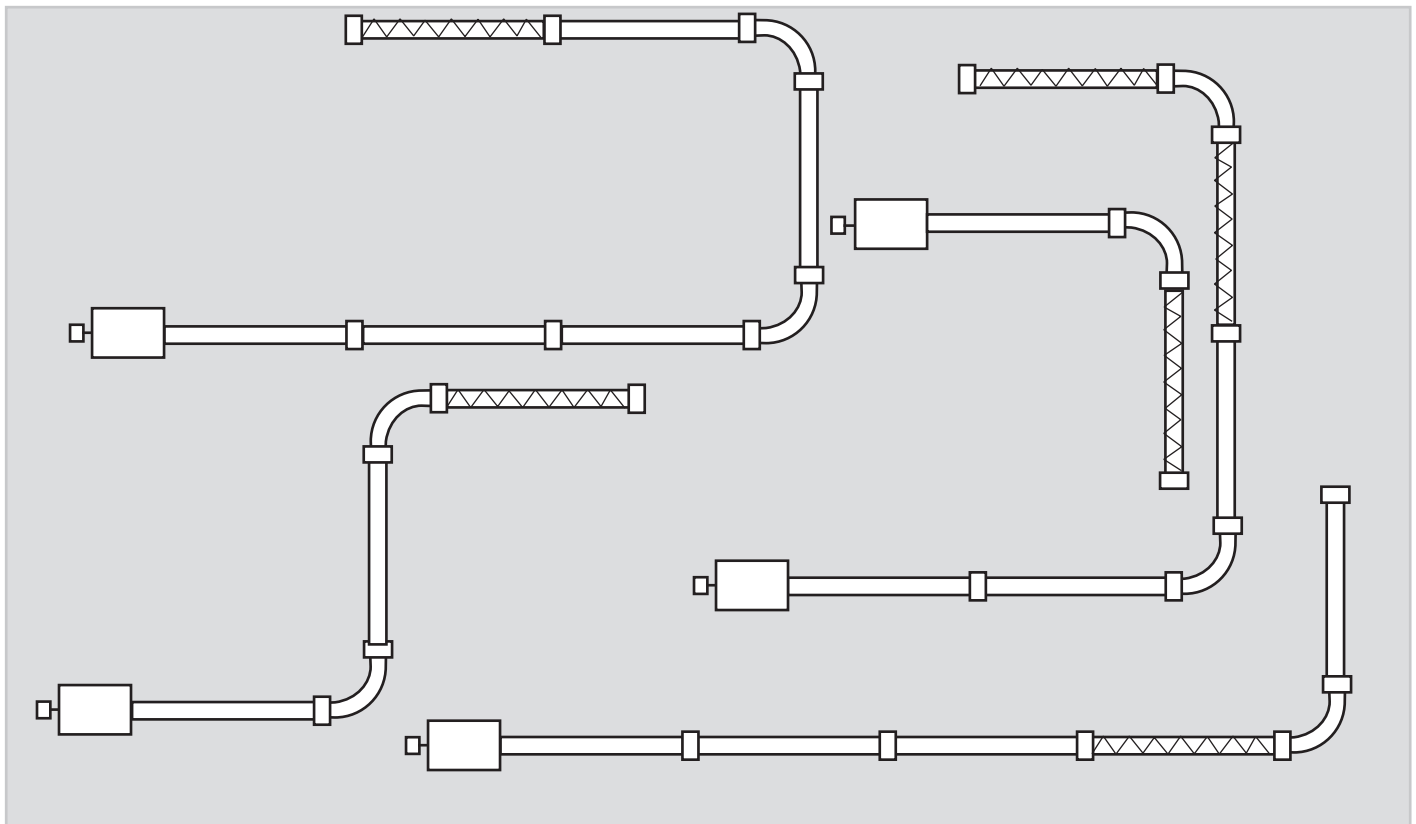
Straight-Standard Configuration for All Sizes and Lengths



"U"-Model TR with a "U" Heat Exchanger Tube, Option UB3



"L"-Model TR with one or two "L" Heat Exchanger Tube(s), Option UC2



IMPORTANT: Do not install an INFRA-REZ[®] Model TR tubular radiant heater in any configuration other than those illustrated in Technical Form RGM-607. Technical Form RGM-607 is provided with each heater. This form is also available from your local Reznor Representative - see back cover of this catalog.

Full Rate Input at Elevations Over 2000 FT.

INFRA-REZ® Model TR heaters equipped for high altitude operation will provide full rate input which means no loss in fuel efficiency or heat. High altitude operation is available for use with either natural or propane gas.

Just by selecting the desired high altitude option, the heater will be shipped, factory-equipped for full rate operation at that elevation.

High Altitude Kits - Models TR 50, 75, 100, 175, and 200 may be converted in the field for high altitude operation by installing a high altitude conversion kit.

Factory Built (All Sizes)

ELEVATION FULL BTUH RATE OPERATION		
U.S.A.	ELEVATION	
Option Code ^A	Meters	Feet
STD	0 - 600	0 - 2,000
OPT. AB2	601 - 900	2,001 - 3,000
OPT. AB3	901 - 1,200	3,001 - 4,000
OPT. AB4	1,201 - 1,500	4,001 - 5,000
OPT. AB5	1,501 - 1,800	5,001 - 6,000
OPT. AB6 ^B	1,801 - 2,100	6,001 - 7,000
OPT. AB7 ^B	2,101 - 2,400	7,001 - 8,000

^A Installations above 2,000 feet in Canada, use Option AB3.

^B Not available for TR-200.

or . . . **Field Converted** (TR50/TR75/TR100/TR175/TR200)

THIS APPLIANCE HAS BEEN CONVERTED AT THE TIME OF INSTALLATION FOR HIGH ALTITUDE USE WITH KIT NO. 120.360

BY _____ WHO ACCEPTS THE RESPONSIBILITY FOR THE CORRECTNESS OF THIS CONVERSION.

MODEL TR 100 FOR USE AT 2001 - 4000 FT., 611-1219 METERS OF ALTITUDE ORIFICE SIZE #10 DRILL

NOTE: Sizes 125 and 150 are not designed for field conversion.

5-FT Heat Exchanger

Five-foot heat exchanger tubes are available to customize a tubular system to "fit" the area needing heat. Refer to Form RGM-607 section on Optional 5 ft. Heat Exchanger Tubes for information and restrictions.

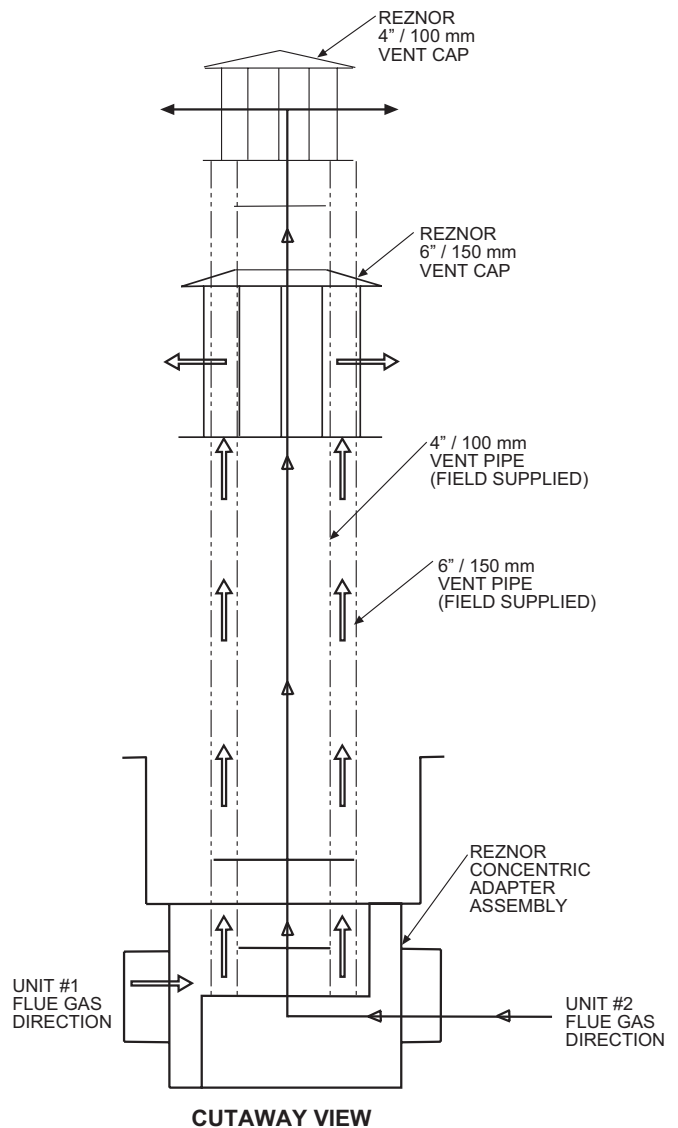
Overall minimum and maximum lengths by size do not change: Order the shorter length system plus the needed quantity of 5-ft. heat exchanger tubes (Option UA-1); or, see the "Ordering Methods" section of this catalog for information on how to order and stock the components to build a modular system. Whether ordered as an option or a part, the 5-ft. tube, its reflector, and hardware will arrive in a separately-marked carton.

Note: Do not install a 5-ft. tube in place of a 10-ft tail pipe. All systems must have a 10-ft tail pipe.

Size	Minimum Length		Maximum Length		Alternative Length(s) Using 1.5 m (5-ft) Tube(s)	
	Meters	Feet	Meters	Feet	Meters	Feet
50	6.1	20	9.1	30	7.6	25
75	6.1	20	12.2	40	7.6 or 10.7	25 or 35
100	9.1	30	15.2	50	10.7 or 13.7	35 or 45
125	12.2	40	15.2	50	13.7	45
150	15.2	50	18.3	60	16.8	55
175	15.2	50	21.3	70	16.8 or 19.8	55 or 65
200	15.2	50	21.3	70	16.8 or 19.8	55 or 65

Dual Venting

A unique design (patent pending) allows dual venting of two INFRA-REZ® Model TR heaters. The concentric design of the vent allows each of the two heaters to be safely operated totally independent of the other. Heaters vented through the optional dual vent do not have to match in capacity, length, or configuration and may be controlled by the same or different thermostats.



Options
Continued on following page ⇒

Options (Continued from previous page)
INFRA-REZ® HEATER Model TR

Outside Combustion Air

INFRA-REZ® Model TR heaters may be operated with combustion air from the heated space or with combustion air piped from outside. If outside combustion air is selected, a Reznor outside combustion air kit must be installed, Outside combustion air may be supplied in any vented application but should always be supplied (1) if the building atmosphere has negative pressure; (2) if the building atmosphere is dirty or dusty; (3) if the building atmosphere contains substances that will cause toxic gas when combined with flame or flue products; (4) if the heater is installed in a tightly closed room that does not provide required air for combustion.

The outside combustion air kit for INFRA-REZ® Model TR heaters includes a section of 4" flexible pipe expandable to three feet, a special designed inlet air cap, and two clamps. The maximum length of the field-supplied combustion air pipe depends on the size and length of heater and the type of pipe.

Combustion Air Inlet Length Table

NOTE: Do not install an outside combustion air inlet on an unvented heater.

MAXIMUM LENGTH OF OUTSIDE COMBUSTION AIR INLET PIPE							
TYPE OF INLET PIPE	SIZE MBH	MAXIMUM LENGTH		EQUIVALENT LENGTH FOR			
		Meters	Feet	90° Elbow		45° Elbow	
				Meters	Feet	Meters	Feet
① Smooth Wall	50	24.4	80	3.0	10	1.5	5
	75						
	100						
	125	18.3	60	3.0	10	1.5	5
	150						
	175						
200							
Corrugated or Flexible	50	12.2	40	N/A	N/A	N/A	N/A
	75						
	100						
	125	9.1	30	N/A	N/A	N/A	N/A
	150						
	175						
200							

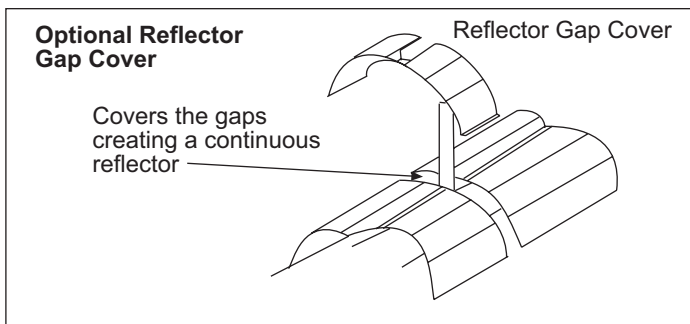
① Assumes the use of three feet of flexible pipe at the combustion air inlet on the burner/control box

Reflector Gaps Covers and End Covers

Reflector gap covers are designed to provide the system with a continuous reflector while still allowing for system expansion. The gap covers "fill-in the gaps" at the ends of the tube reflectors.

End caps vertically "close" both the combustion chamber end and the tail pipe end of the reflector system.

Reflector gap covers may be installed on any INFRA-REZ® heater system. End covers may only be used in conjunction with the gap covers.

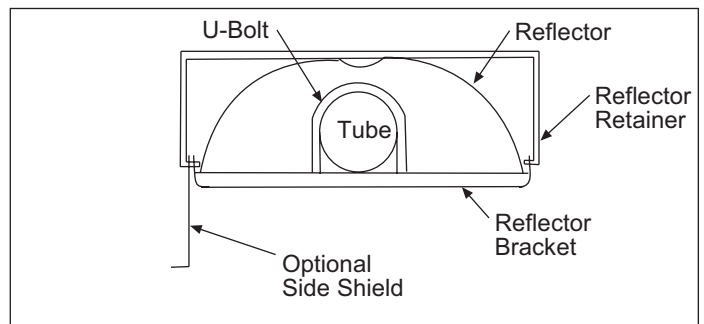


NOTE: Reflectors on systems with gap covers cannot be rotated.

Side Shield

An optional side shield may be added to INFRA-REZ® Model TR heaters. With an optional side shield installed along one side of the length of a straight tubular system, the heater may be installed with much less clearance to combustibles.

The aluminum side shield is a modular design with two sections per 10-ft. tube. The modular sections hang from the tube reflector brackets. Reflector brackets, reflectors, and optional side shield are designed for easy installation.



Packaging Scheme and Ordering

INFRA-REZ® HEATER Model TR

Burner Box Packaging Scheme

- **Ordering for a Specific Job** - Burner boxes are factory-built and shipped in the sizes indicated in the table below. Tube lengths ordered should match the capacity of the heater ordered.
- **Ordering Burner Boxes for Stock** - Burner boxes are designed for convenience of the stocking distributor.

Tubes for any standard length of heater are packaged in a maximum of only three carton types. The Packaging Scheme allows the stocking distributors to inventory the tube packages in whatever lengths meets their most frequent requirements.

By matching the burner/control boxes and the tube packaging scheme, a variety of heater sizes and lengths are “in stock” with minimum inventory.

Desired MBH Input	Model Number	Heater Tube Length Range
50	TR50	20 - 30 ft.
75	TR75/100	20 - 40 ft.
100	TR75/100 ①	30 - 50 ft.
125	TR125/150	40 - 50 ft.
150	TR125/150 ②	50 - 60 ft.
175	TR175/200	50 - 70 ft.
200	TR175/200 ③	50 - 70 ft.

- ① **TR75/100** - is factory-built as 75 MBH and includes a conversion kit to field-convert to 100 MBH.
- ② **TR125/150** - is factory-built as 125 MBH and includes a conversion kit to field-convert to 150 MBH.
- ③ **TR175/200** - is factory-built as 175 MBH and includes a conversion kit to field-convert to 200 MBH.

Tube Packaging Scheme

All cartons include the hardware required for assembly. Each tube package includes the equipment necessary to assemble that section including reflectors, reflector brackets, and turbulator strips.

Packaging of Burner/Control Boxes - Burner/control boxes are shipped in individual cartons. Each carton is identified by the Order No. and the Model and Serial No. of the heater.

Packaging Scheme for Tubes - A maximum of only three packages is required to “build” any standard length of straight tubular system. All packages are identified by No. and contents. Cartons are engineered and packaged to allow for normal freight handling.

Packaging Scheme by Size for Straight Tubes

Contents of Tube Packages			
Part Number	120294	120295	120296
3 m (10 ft.) Combustion Chamber Tube	✓	✓	-
3 m (10 ft.) Heat Exchanger Tube	-	✓	✓
3 m (10 ft.) Heat Exchanger Tube with Turbulators	-	-	✓
3 m (10 ft.) Tail Pipe with Turbulators	✓	✓	-

Optional tubes are shipped separately in individually labeled cartons.

Shape	Option Number
5 ft. Straight	UA1
"U" Bend	UB3
"L" Bend	UC2

Reznor’s packaging scheme keeps the number and variety of packages to a minimum. By limiting the number of different cartons, the packaging scheme is designed to be beneficial for both maintaining inventory and ordering for a specific job.

All INFRA-REZ® Model TR heaters require a burner/control box, a combustion chamber tube, and a tail pipe. The “length” of the system is determined by the number of straight heat exchanger tubes that are positioned between the combustion chamber tube and the tail pipe.

Refer to installation manual to determine correct number of turbulator strips to be installed.

TOTAL SYSTEM LENGTH		REQUIRED COMPONENTS			REQUIRES THE FOLLOWING PART NUMBERS	
		COMBUSTION CHAMBER	HEAT EXCHANGERS	TAIL PIPE	1 EACH	2 EACH
Meters	Feet					
6.1	20	1	0	1	120294	-
9.1	30	1	1	1	120295	-
12.2	40	1	2	1	120294 & 120296	-
15.2	50	1	3	1	120295 & 120296	-
18.3	60	1	4	1	120294	120296
21.3	70	1	5	1	120295	120296

Installations of INFRA-REZ® Model TR heaters in the United States must be in accordance with the National Fuel Gas Code ANSI Z-223.1 (latest edition) and all local codes. In Canada, installations must be in accordance with the latest edition of CAN/CGA B149.1 and B149.2 and any local authorities having jurisdiction.

To allow for thermal expansion, INFRA-REZ® Model TR heaters must be suspended with chain and must have flexible gas and electric connections.

Chain must have a minimum load-carrying capacity of 200 lbs. Depending on the type of building construction, the installer may either attach the chain support directly to the building or attach and extend a support to the location needed (all chain supporting tube sections must be plumb). SUPERSTRUT® brackets or a comparable metal strut material is well suited as a support structure that requires numerous suspension points. INFRA-REZ® Model TR heaters must be level. The use of turnbuckles is not required but is recommended to assist in leveling the heater. If used, turnbuckles must be of steel or malleable iron. Optional chain kits and turnbuckle kits are available from Reznor.

RECOMMENDED MINIMUM MOUNTING HEIGHTS								
Reflector Position		Model (000 BTUH Input)						
		50	75	100	125	150	175	200
Horizontal	Meters	3.4	3.7	4.0	4.6	4.9	5.2	5.5
	Feet	11	12	13	15	16	17	18
30° Angle	Meters	2.7	3.0	3.4	4.0	4.3	4.6	4.9
	Feet	9	10	11	13	14	15	16
45° Angle	Meters	2.4	2.7	3.0	3.4	4.0	4.3	4.6
	Feet	8	9	10	11	13	14	15

Each burner/control box is equipped with a grounded, plug-in electrical cord. Gas connection must be with either an expansion coil or an approved stainless steel flexible connector. Optional flexible connectors are available from Reznor. Flexible connectors do affect gas pressure. Pressure drops for flexible connectors available from Reznor are listed below. (Required gas pressures found in Technical Data Tables.)

GAS PRESSURE DROP ("W.C.) THROUGH 24" STAINLESS STEEL FLEXIBLE CONNECTORS AVAILABLE FROM REZNOR								
Size		50	75	100	125	150	175	200
13 mm (1/2") I.D.	mbar	0.62	0.62	0.62	1.25	1.87	1.99	2.24
	in. w.c.	0.25	0.25	0.25	0.50	0.75	0.80	0.90
19 mm (3/4") I.D.	mbar	0.12	0.12	0.25	0.37	0.50	1.00	1.25
	in. w.c.	0.05	0.05	0.10	0.15	0.20	0.40	0.50

INFRA-REZ® Model TR heaters are designed with these installation advantages:

-Modular turbulator strips with interlocking connections

All tube packages include a field-installed turbulator strip. The turbulator strip is slid into the tube in small, easy-to-handle sections. By interlocking the sections as they are installed, the required number of sections can be slid into the tube creating the full-sized turbulator strip.

-Reflector retainers

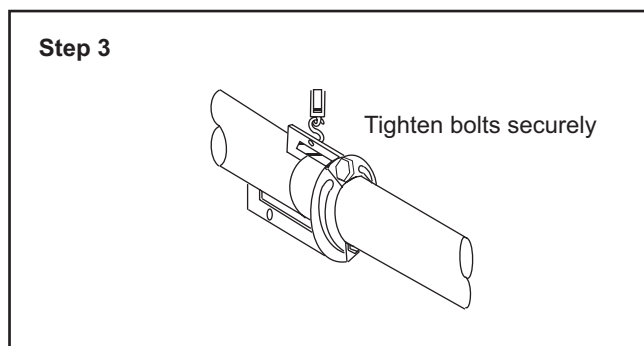
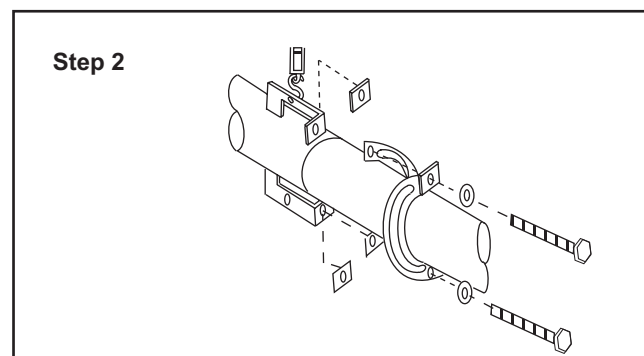
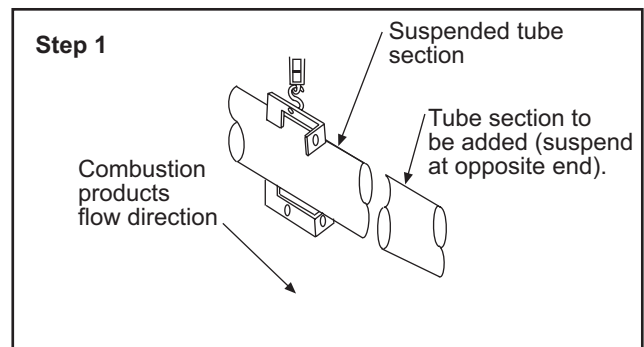
Reflectors are required to direct radiant heat. Reflectors, reflector brackets, and hardware "kits" are included in the tube packages. The reflector retainers extend over the installed reflectors securing the reflector to the tube.

-Terminal strip for thermostat connection

The burner/control box is equipped with a terminal strip for connection of a remote thermostat, or the thermostat may be attached to the heater by using an optional thermostat bracket. Up to six heaters may be controlled by one thermostat or time clock by installing a multiple heater control option.

-Unique slip-fit tube connections (U.S. Patent No. 5,460,415)

All tubes are joined by a slip-joint and connected with clamps and hardware. All required parts for each tube connection are individually packaged and shipped in the tube carton. The unique slip-fit connection allows connecting tubes to be a one-person operation.



Sample Specifications

INFRA-REZ® HEATER Model TR Tubular Radiant Heaters

Provide gas-fired tubular radiant heaters manufactured as Reznor brand units. The heaters shall be the INFRA-REZ® Model TR Series, radiant tubular heaters with a power burner housed in 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 from field-supplied hanging chains.

Size 50,000 - 150,000 BTUH units shall be equipped for use with natural (propane) gas and 115/1 (208/1) (230/1) volt supply voltage and will operate a full input rate at elevations to 2,000 ft. (elevations 2001 - 8000 ft.). Size 175,000 and 200,000 BTUH units shall be equipped for use with natural gas and 115/1 and will operate at full input rate at elevations to 2000 ft. (Size 174, elevations 2001 - 8000 ft.; Size 200, elevations 2001 - 6000 ft.).

The burner control system shall have a 24-volt transformer; a spark ignited, intermittent safety pilot with electronic flame supervision; redundant single-stage combination gas valve; a burner-on indicator light; sight glass for observing flame; a power burner with post purge; a differential air pressure switch to measure combustion air; a safety interlock switch on the service door; a test port with removable cover; and a terminal board for connection of remote (unit mounted) thermostat. Electrical supply connection is with a grounded, plug-in cord. Gas connection to the valve must be with field-supplied expansion coil or approved flexible connector.

The tubular system shall include a 14-gauge aluminized steel combustion chamber, high emissivity radiant 10' (5') straight ("U") ("L") heat exchanger tubes, tail pipe, turbulator strips, built-in suspension hangers, slip-fit tube connections, and polished aluminum reflectors with reflector retainers. Heater may be individually (or dual) vented horizontally or vertically and may operate on either inside (or outside) combustion air. Reflectors may be positioned from horizontal to 45° angle. Horizontal reflectors may include optional side shield, optional gap covers, and optional end covers. All connection hardware kits shall be packaged in individual bags and include illustrated instructions.

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, illustration, and additional field-installed options as described in this catalog.)

Limited Warranty

INFRA-REZ® HEATER Model TR Tubular Radiant Heaters

Reznor warrants to the original owner-user that this Reznor product will be free from defects in material or workmanship. This warranty is limited to twelve (12) months from the date of original installation, whether or not actual use begins on that date, or eighteen (18) months from date of shipment by Reznor, whichever occurs first.

Extended Limited Warranty

Extended 9-year, non-prorated, limited warranty on all tubes.

Extended 4-year, non-prorated, limited warranty on the burner and all electrical and mechanical operating components.

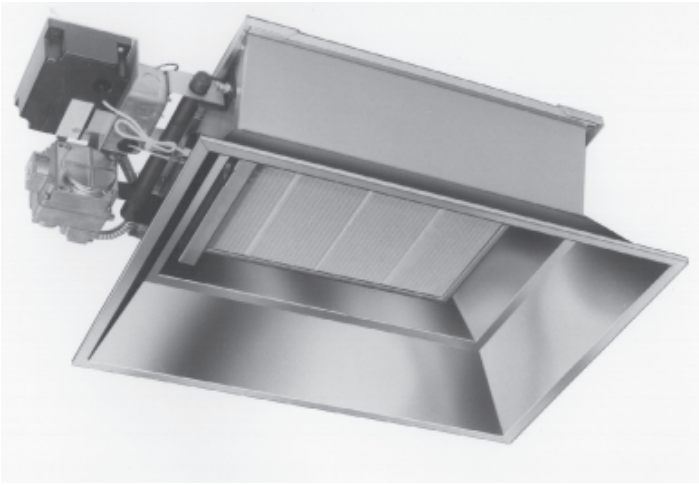
Limitations and Exclusions

Thomas & Betts Corporation's obligation under this warranty is limited to repair or replacement at its manufacturing facility of any part or parts of this Reznor product identified by model or serial number which shall be returned to Thomas & Betts Corporation with transportation charges prepaid and which the manufacturer's examination shall disclose to its satisfaction to be defective. Reznor parts or products will not be accepted at the manufacturing facility without an attached Return Materials Tag. Repaired or replacement parts will be shipped by the Thomas & Betts Corporation facility, F.O.B. shipping point.

1. This warranty does not cover labor or other costs incurred in repairing, removing, installing, servicing, or handling of parts or complete products.
2. This warranty will not apply if the input to the product exceeds the rated input as indicated on the nameplate by more than 5%, or if the product in the judgment of the manufacturer has been subjected to misuse, negligence, accident, corrosive atmospheres, atmospheres containing any contaminant (silicone, aluminum oxide, etc.), excessive thermal shock, physical damage, impact, abrasion, unauthorized alterations, or operation contrary to the manufacturer's printed instructions, or if the serial number has been altered, defaced or removed.
3. Thomas & Betts Corporation shall not be liable for any default or delay in performance of its warranty obligations hereunder caused by any circumstances beyond its control, including but not limited to judicial or government restrictions or restraints, strikes, fires, floods, or reduced supplies of raw materials, energy, or parts.
4. To the maximum extent provided by law, Thomas & Betts Corporation will not be liable for any loss, damage, cost of repair, or incidental or consequential damages of any kind in connection with the sale, use, or repair of any Reznor products. **THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS AND IMPLIED, AND THOMAS & BETTS CORPORATION DISCLAIMS ALL OTHER EXPRESS WARRANTIES AND ALL IMPLIED WARRANTIES INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE.** No person is authorized to assume for Thomas & Betts Corporation any other warranty, obligation, or liability.

REZNOR

RIH, RIHV Gas Fired High Intensity Infrared Heaters for Indoor Commercial-Industrial Use



WARNING: GAS-FIRED APPLIANCES ARE NOT DESIGNED FOR USE IN HAZARDOUS ATMOSPHERES CONTAINING FLAMMABLE VAPORS OR COMBUSTIBLE DUST, OR ATMOSPHERES CONTAINING CHLORINATED OR HALOGENATED HYDROCARBONS. INSTALLATIONS IN PUBLIC GARAGES OR AIRPLANE HANGARS ARE PERMITTED WHEN IN ACCORDANCE WITH ANSI Z-223 AND ANSI/NFPA 409 AND NFPA 888 CODES OR CNAI-B149 CODES AND ENFORCING AUTHORITIES.



NOTE: Not approved for residential use.

DESCRIPTION

Reznor 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 160,000 BTUH gas input for use with natural gas and sizes from 50,000 through 120,000 BTUH gas input for use with propane gas.

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.

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

STANDARD FEATURES

- 115 volt operation
- 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 - Field Installed

- Parabolic reflector
- Wire grid for increased radiant efficiency
- Protective screen for standard reflector
- Heat deflector shield (to reduce required clearance above the heater)
- 120/24V Thermostat (50° - 90°F)
- Stainless steel flexible connector (24") with manual valve
- Chain (50 ft.) with 14 "S" hooks
- Chain mounting kit (pre-assembled for one heater)

VENTILATION REQUIREMENTS

Natural Gas - 4 CFM of positive air displacement per 1,000 BTUH

Propane Gas - 5 CFM of positive air displacement per 1,000 BTUH

for Commercial - Industrial Use

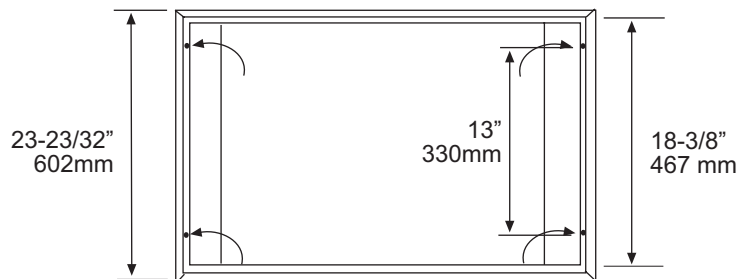
TECHNICAL DATA

MODELS		NATURAL GAS					PROPANE GAS			
		RIHN 30*	RIHN 60**	RIHVN 100	RIHVN 150	RIHVN 160	RIHL 50	RIHVL 90	RIHVL 120	
HEATING INPUT	kW	8.8	17.6	29.3	44.0	46.9	14.7	26.4	35.2	
	MBH	30	60	100	150	160	50	90	120	
INLET GAS PRESSURE	MINIMUM	mbar	17	17	17	17	17	27	27	30
		" w.c.	7	7	7	7	7	11	11	12
	MAXIMUM	mbar	35	35	35	35	35	35	35	37
		" w.c.	14	14	14	14	14	14	14	15
ALLOWABLE MOUNTING ANGLE (in degrees)		0 - 30 deg.	0 - 30 deg.	5 - 30 deg.	0 - 30 deg.	5 - 30 deg.	10 - 30 deg.	10 - 30 deg.	30 deg. ONLY	
GAS CONNECTION	mm	13	13	13	13	13	13	13	13	
	in.	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	
SHIPPING WEIGHT	Lbs.	26	26	36	48	61	26	36	48	
	Kg	12	12	16	22	28	12	16	22	

* MODEL RIHN30 IS NOT AVAILABLE IN CANADA

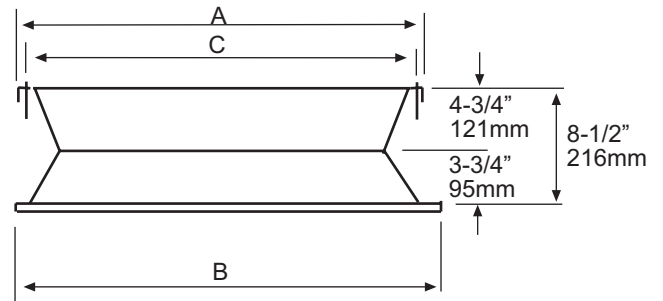
**MODEL RIHN60 IN CANADA REQUIRES ADDITION OF A WIRE GRID, OPTION DN2

DIMENSIONAL DATA



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

TOP VIEW



FRONT VIEW

DIMENSIONS ACCURATE TO WITHIN 3mm or 1/8 in.

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

Location/Installation

Models RIH/RIHV - High Intensity Infrared Heaters

MOUNTING ANGLE MUST BE WITHIN THE RANGE ALLOWED

MODEL	ALLOWABLE MOUNTING ANGLE RANGE	IMPORTANT
RIHN 30	HORIZONTAL TO 30 deg.	When angle mounted, all RIHV Models must be installed with the gas manifold on the lower end. When angle mounted, RIH Models must be installed with the gas valve on the high side. Do not anlge heaters more than 30°.
RIHL 50	10 - 30 deg.	
RIHN 60	HORIZONTAL TO 30 deg.	
RIHL 90	10 - 30 deg.	
RIHN 100	5 - 30 deg	
RIHL 120	30 deg. ONLY	
RIHN 150	HORIZONTAL TO 30 deg.	
RIHL 160	5 - 30 deg	

MINIMUM MOUNTING HEIGHT

Lower mounting height may be used if personnel are not positioned directly under the heater.

MODEL		WITH STANDARD REFLECTOR		WITH OPTIONAL PARABOLIC REFLECTOR	
		HORIZONTAL	30 degrees	HORIZONTAL	30 degrees
RIHN 30	Feet	11.0 - 13.0	10.0 - 12.0	-	-
	Meters	3.4 - 4.0	3.0 - 3.7		
RIHL 50*	Meters	4.1 - 4.7	3.8 - 4.4	4.7 - 5.6	4.3 - 5.2
	Feet	13.5 - 15.5	12.5 - 14.5	15.5 - 18.5	14.0 - 17.0
RIHN 60	Meters	4.4 - 5.0	4.0 - 4.6	4.9 - 6.1	4.6 - 5.5
	Feet	14.5 - 16.5	13.0 - 15.0	16.0 - 20.0	15.0 - 18.0
RIHL 90*	Meters	4.9 - 5.6	4.4 - 5.2	5.9 - 6.9	5.3 - 6.2
	Feet	16.0 - 18.5	14.5 - 17.0	19.5 - 22.5	17.5 - 20.5
RIHN 100*	Meters	5.2 - 5.9	4.6 - 5.3	6.2 - 7.2	5.6 - 6.6
	Feet	17.0 - 19.5	15.0 - 17.5	20.5 - 23.5	18.5 - 21.5
RIHL 120*	Meters	5.3 - 6.4	4.7 - 5.6	6.6 - 7.6	6.1 - 7.0
	Feet	17.5 - 21.0	15.5 - 18.5	21.5 - 25.0	20.0 - 23.0
RIHN 150	Meters	5.6 - 6.9	4.7 - 6.1	7.3 - 8.4	6.6 - 7.5
	Feet	18.5 - 22.5	15.5 - 20.0	24.0 - 27.5	21.5 - 24.5
RIHL 160*	Meters	5.8 - 7.0	5.2 - 6.2	7.6 - 8.7	6.9 - 7.8
	Feet	19.0 - 23.0	17.0 - 20.5	25.0 - 28.5	22.5 - 25.5

* Must be within allowable mounting angle range (see table on previous page).

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

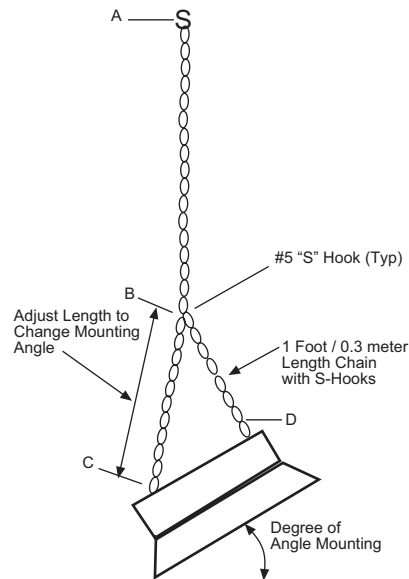
Recommended Distance from a Wall for Units Mounted HORIZONTALLY				
Models	With Standard Reflector		With Optional Reflector	
	Meters	Feet	Meters	Feet
RIHN 30	2.4	8	1.5	5
RIHN 60	3.7	12	2.7	9
RIHVN 150	6.1	20	4.6	15

Location/Installation

Models RIH/RIHV - High Intensity Infrared Heaters

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 1' length chains with S-hooks to front of heater (D).
3. Place other end of chains 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.



Sample Specifications

Models RIH/RIHV - High Intensity Infrared Heaters

Provide gas-fired, high-intensity infrared heaters manufactured as Reznor brand units. The heaters shall be equipped for use with natural (propane) gas to operate on a 115 volt supply voltage.

The burner control system shall have a direct spark ignition with 100% safety shut-off and a solenoid gas valve with 1/2" NPT inlet.

Heaters shall be of compact modular design and rugged construction consisting of the controls; a seamless aluminized steel plenum chamber with stainless steel ceramic tile retainer clips; surface combustion ceramic burner capable of full intensity temperature in less than 30 seconds; venturi mixer of spun metal construction for precision metering of air/gas mixture; highly polished aluminum reflector; and balanced suspension holes.

The burner assembly shall be removable with a single screw for cleaning or replacement. The ceramic combustion surface shall reach temperatures up to 1850°F and be of a cordierite-based grooved design with alternating rows of precision perforations producing a shorter stable flame.

These units must be approved for installation in The United States and Canada by the Canadian Standards Association (CSA). (Capacities, dimensions, and additional field-installed options as described in this catalog.)

Limited Warranty

Model RIH/RIHV Heaters

Thomas & Betts warrants to the original owner-user that this Reznor product will be free from defects in material or workmanship. This warranty is limited to twelve (12) months from the date of original installation, whether or not actual use begins on that date, or eighteen (18) months from date of shipment by Reznor, whichever occurs first.

Limitations and Exclusions

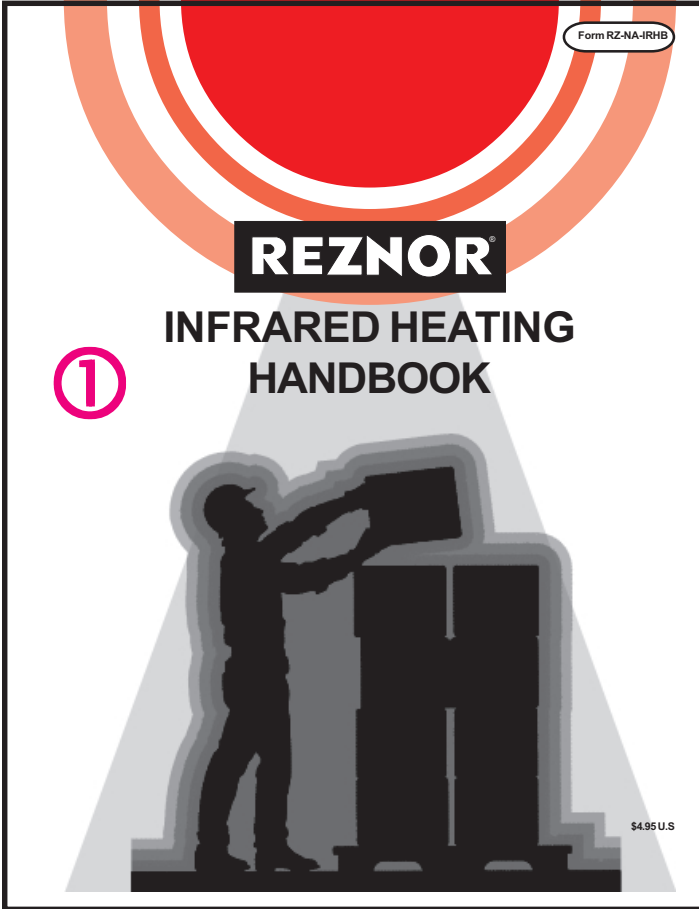
Thomas & Betts Corporation's obligation under this warranty is limited to repair or replacement at its manufacturing facility of any part or parts of this Reznor product identified by model or serial number which shall be returned to Thomas & Betts Corporation with transportation charges prepaid and which the manufacturer's examination shall disclose to its satisfaction to be defective. Reznor parts or products will not be accepted at the manufacturing facility without an attached Return Materials Tag. Repair or replacement parts will be shipped by the Thomas & Betts Corporation facility, F.O.B. shipping point.

1. This warranty does not cover labor or other costs incurred in repairing, removing, installing, servicing, or handling of parts or complete products.
 2. This warranty will not apply if the input to the product exceeds the rated input as indicated on the nameplate by more than 5%, or if the product in the judgment of the manufacturer has been subjected to misuse, negligence, accident, corrosive atmospheres, atmospheres containing any contaminant (silicone, aluminum oxide, etc.), excessive thermal shock, physical damage, impact, abrasion, unauthorized alterations, or operation contrary to the manufacturer's printed instructions, or if the serial number has been altered, defaced or removed.
 3. Thomas & Betts Corporation shall not be liable for any default or delay in performance of its warranty obligations hereunder caused by any circumstances beyond its control, including but not limited to judicial or government restrictions or restraints, strikes, fires, floods, or reduced supplies of raw materials, energy, or parts.
 4. To the maximum extent provided by law, Thomas & Betts Corporation will not be liable for any loss, damage, cost of repair, or incidental or consequential damages of any kind in connection with the sale, use, or repair of any Reznor products. **THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS AND IMPLIED, AND THOMAS & BETTS CORPORATION DISCLAIMS ALL OTHER EXPRESS WARRANTIES AND ALL IMPLIED WARRANTIES INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE.** No person is authorized to assume for Thomas & Betts Corporation any other warranty, obligation, or liability.
-

Thomas&Betts

Reznor

REZNOR SUPPORTS RADIANT HEATING



① Infrared Heating Handbook

Designed as a reference manual, Reznor's Infrared Heating Handbook begins with general information on radiant heat transfer and the development of radiant heating equipment. The information becomes more specific, explaining procedures for selecting and sizing both low-intensity and high-intensity infrared equipment. Examples illustrate equipment selection for both spot and space heating applications.

② INFRA-REZ® Model TR Configurations

An advantage of tubular radiant heating is the capability to adapt its shape to the area needing heat. To make designing easy, refer to Reznor's Technical Form RGM-607, a 64-page booklet illustrating over 100 configurations of INFRA-REZ® Model TR radiant heaters.

③ INFRA-REZ® Model TR Layout Drawings

Provide your Reznor Representative with the required information, and Reznor will supply you with a professional layout drawing for any INFRA-REZ® space heating application.

④ INFRA-REZ® Model TR Flux Density (Floor Coverage) Drawings

INFRA-REZ® heater flux density testing provides accurate floor coverage information for spot heating. Consult Technical Form RGM-T-FLUX for easy-to-interpret, illustrated floor coverage information (Available for all straight and balanced "U" configurations).

CONTACT YOUR REZNOR REPRESENTATIVE (BACK COVER) TO TAKE ADVANTAGE OF REZNOR'S RADIANT HEATING SUPPORT.

