

LS SERIES TUBE HEATERS

SUBMITTAL DATA – LOW INTENSITY GAS-FIRED INFRARED TUBE HEATERS & ACCESSORIES

SUBMITTED BY: _____ DATE: _____

JOB TITLE: _____ CONTRACTOR: _____

ADDRESS: _____ PHONE #: _____

CITY: _____ ADDRESS: _____

PROVINCE: _____ POSTAL CODE: _____ CITY: _____

PROVINCE: _____ POSTAL CODE: _____

ENGINEER: _____

LOCAL REPRESENTATIVE: _____

NOTES: _____

									FIELD USE ONLY***
QTY.	MODEL #	TAG	GAS TYPE (Circle One)	BTU/h INPUT	STRAIGHT LENGTH	U-TUBE LENGTH	STANDARD WEIGHT	RCMD. MOUNTING HEIGHTS ^	"TYPE" TUBE PKG #1
	LS-10-25*		N or LP	25,000	12' - 1"	N/A	70 lbs.	7' to 11'	10-3 Titanium
	LS-10-30*		N or LP	30,000	12' - 1"	N/A	70 lbs.	8' to 11'	10-3 Titanium
	LS-10-40		N or LP	40,000	12' - 1"	N/A	70 lbs.	10' to 14'	10-3 Titanium
	LS-15-30*		N or LP	30,000	16'-10"	N/A	85 lbs.	8' to 15"	15-3 Titanium
	LS-15-40*		N or LP	40,000	16' - 10"	N/A	85 lbs.	8' to 13'	15-3 Titanium
	LS-15-50		N or LP	50,000	16' - 10"	N/A	85 lbs.	10' to 15'	15-3 Titanium
	LS-20-40*		N or LP	40,000	21' - 10"	13' - 0"	100 lbs.	8' to 13'	20-3 Titanium
	LS-20-50		N or LP	50,000	21' - 10"	13' - 0"	100 lbs.	9' to 15'	20-3 Titanium
	LS-30-50*		N or LP	50,000	31' - 7"	**17' - 8"	120 lbs.	9' to 14'	30-3 Titanium

- * CSA Design Certified for installation in residential applications.
 - ** Model requires DB-5EA SUB accessory package when installing in a 'U' configuration.
 - *** Type packages refer to the tube package that will ship with models (length, diameter, combustion tube type and radiant tubes).
 - ^ Recommended mounting heights are provided as a guideline. Actual conditions may dictate variations from this data. Protective Guards (P/N: PG) are required when mounting below 8 ft.
- N/A:** Not Available or Not Applicable.



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- Product Specs
- C.A.D. Library
- Parts Support
- Design Guidelines
- Dealer Locator
- Theory of Infrared
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- and More!

LS SPECIFICATIONS

APPROVALS

- CSA Design Certified.
- Select models are residentially certified to CSA No. 7-89.

BURNER CONTROL BOX

- Sight glass for burner inspection.
- Totally enclosed components.
- Coated enameled steel.
- Operational indicator lights.

GAS CONNECTION

- ½ or ¾ Type 1 Rubber Hose

GAS SUPPLY (Inches W.C.)

- Manifold pressure Nat 3.5; LP 10.0
- Min. Inlet pressure Nat 5.0; LP 11.0
- Max. Inlet pressure Nat 14.0; LP 14.0

POWER SUPPLY

- 120 VAC, 60 Hz GRD, 1 Ph., 3-wire.
- Ignition current - 4.8 amps.
- Running current - 1.1 amps.

CONTROLS

- 100% safety shut-off.
- Silicon carbide hot surface ignition.
- Dual safety pressure switches.
- Pre-purge controls.
- Flame rod sensing.
- 120V thermostatic control.
- Moisture and corrosion resistant ignition module.

REFLECTOR

- Highly polished aluminum.
- Continuous overlap design.
- Two end caps included.
- Anti-rattle tension springs.
- One center support per reflector.

COMBUSTION & RADIANT TUBES

- 16ga. 3" O.D. titanium stabilized combustion chamber.
- 16ga. 3" O.D. aluminized coated steel radiant emitter tubes.
- All tubes coated with high temperature, corrosion resistant black coating. .95 emissivity.
- Slip-fit swaged tube connection.
- Stainless steel turbulator baffle.

COMBUSTION AIR INLET & VENTING

- Preset 4 in. combustion air inlet collar.
- Sidewall or roof venting.
- Venting is required for residential applications.

LIMITED WARRANTY

- 1 year - Burner box components.
- 3 years - Combustion and radiant tubes.
- 5 years - Burner.

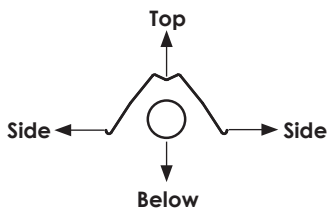
CLEARANCES TO COMBUSTIBLES (IN INCHES)

MODEL NO.	MOUNTING ANGLE*	SIDE				
		FRONT	BEHIND	TOP	BELOW	
LS 10,15- (25, 30) [N,P]	0°	8	8	4	36	
	45°	39	8	10	36	
	W/1 side shield	0°	29	8	4	36
	W/2 side shields	0°	9	9	4	36
20 ft. from burner	0°	N/A	N/A	N/A	N/A	
LS (10, 15, 20) - 40 [N,P]	0°	15	15	6	45	
	45°	58	8	10	45	
	W/1 side shield	0°	42	8	6	45
	W/2 side shields	0°	20	20	6	45
20 ft. from burner	0°	N/A	N/A	N/A	N/A	
LS (15, 20, 30) - 50 [N,P]	0°	11	11	6	48	
	45°	39	8	10	48	
	W/1 side shield	0°	29	8	6	48
	W/2 side shields	0°	16	16	6	48
20 ft. from burner	0°	7	7	6	30	

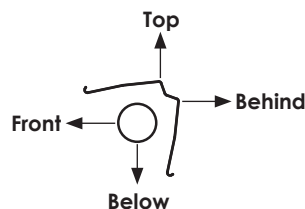
NOTE: The minimum end clearance is 12 inches.

* Heaters mounted on an angle between 0° and 45° must maintain clearances posted for 0° or 45°; whichever is greater.

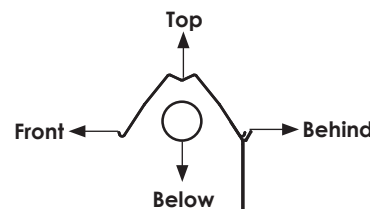
0° Mounting Angle



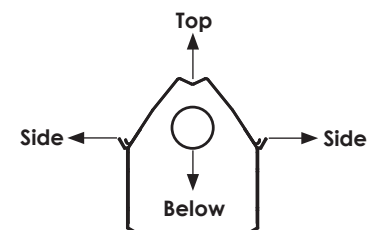
45° Mounting Angle



0° w/ 1 Side Shield



0° W/ 2 Side Shields

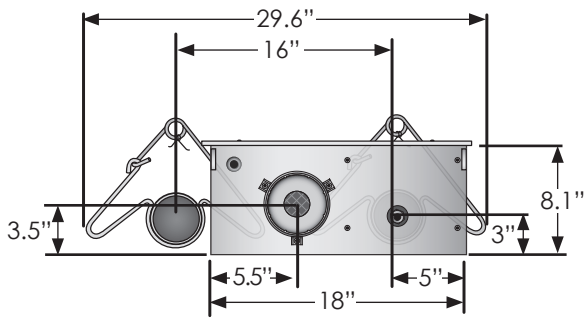


Read and understand the installation, operation and maintenance manual prior to installing or servicing this unit.

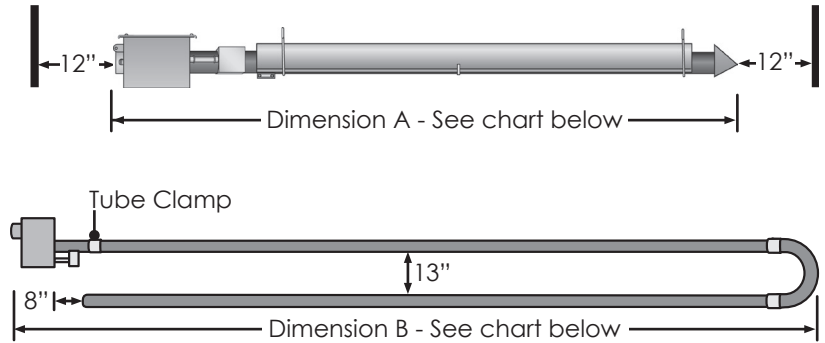
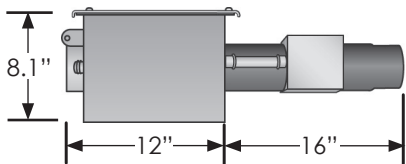
In locations used for the storage of combustible materials, signs must be posted adjacent to the heater's thermostat specifying stacking heights.

FIELD DATA

Burner Control Box with U-Bend - End View



Side View



MODEL NUMBER	DIMENSION A STRAIGHT	DIMENSION B U-TUBE
LS-10	12' - 1"	N/A
LS-15	16' - 10"	N/A
LS-20	21' - 10"	13' - 0"
LS-30	31' - 7"	*17' - 8"

*with DB-5EA SUB

Visit www.reverberray.com/technical for wiring schematics.

OPTIONAL ACCESSORIES

QTY.	PART #	DESCRIPTION	NOTES
	DB-10EA	10' X 3" Tube & Reflector Extension	Optional 10 ft. extension package. Max. one per unit.
	DB-DSK	3" Sidewall Vent Kit	Required for all single sidewall vents. No roof venting.
	DB-E6	90 Degree, 3" Radiant Elbow	Used for making an 'L' tube shaped heater. Max. two per unit.
	DB-REP	Reflector & Elbow Package	Reflector and accessories used to configure heater in an 'L' shape.
	DB-RUP	Reflector & 'U' Bend Package	Reflector and accessories used to configure heater in a 'U' shape.
	DB-TF1B	180 Degree, 3" Radiant 'U' Bend	Used for making a 'U' shaped heater. Max. one per unit.
	DB-TR60	5' x 3" Tube & Reflector Extension	Optional 5' extension package. Max two per unit.
	DB-Y	3" x 4" x 3" Dual Exhaust Assembly (alum)	Used for joining two heaters on one vent. Same thermostat required.
	DB-YSM	3" x 4" x 3" Dual Exhaust Assembly (galv)	Used for joining two heaters on one vent. Same thermostat required.
	4-DSK	4" Sidewall Vent Kit	Required for all dual sidewall vents. No roof venting.
	BK	Angle Mounting Bracket	Rotates unit to preset 15-30-45 degree mounting angles.
	PG	Protective Guard	Protects heat exchanger from contact or objects. Each 5' in length.
	PLQ	Warning Plaque	Hung below heater, restates the clearance to combustible warning.
	RTVP-3	3" Rooftop Vent Package	Used to singly vent through the roof.
	RTVP-4	4" Rooftop Vent Package	Used to dual vent vertically through the roof.
	SMB	Single Mount Bracket	Provides units with 'U' bend uniform mounting points. One per 10'.
	SSE	Side Shield Extension	Reflector side guard used to lower side clearances. Each 5' in length.
	THCS	Tube Heater Chain Set	5 ft. chain set with two S-hooks used for hanging heater.
	WIV-4	4" Combustion Air Intake - Sidewall Cap	Used to duct fresh (cold) air 0-30 ft. to a heater. Sidewall only.
	WVE-3	3" Unvented Exhaust Termination Cap	Required when operating unvented. Flapper ensures proper operation.

NOTE: Refer to the Tube Heater Accessory List for detailed specifications and limitations on any of the above options.

OPTIONAL UPGRADES

- SILSEAL** Protects internal burner box components against contaminants.
- OD-KIT** Required for use when applying heaters outdoors.
- 24VAO** Internally mounted 24V controlled relay with power cord and terminal plug. Allows for separate circuit operation.
- DB-5EA SUB** Substitute one 10' radiant tube and reflector for two 5' pieces. This is ideal for making "U" heaters from 30' models. Maximum of one per heater.

STAINLESS STEEL UPGRADES

- SSCBAO** - Control Box.
- SSRAO** - 10 ft. Reflector Section.
- SSE-SAO** - Side Shield Extension.

NOTE: Refer to the Tube Heater Accessory List for detailed specifications and limitations on any of the above options.

WRITTEN SPECIFICATIONS

PRODUCTS

1. TUBULAR INFRARED HEATERS
 - A. Basis-of-design product: Subject to compliance with requirements, provide Brant Radiant Heaters Limited; Re-Verber-Ray LS Series.
 - B. Fuel type: Burner shall be designed for [natural] [propane] gas having characteristics same as those of gas available at project site.
 - C. Gas control: Operation shall be designed to shut off the gas flow to the main burner in the event either a gas supply or power supply interruption occurs.
 - D. Combustion chamber: Shall be 3 inch O.D. 16ga. Titanium stabilized aluminized steel (to allow for the operating temperature to exceed the 1030°F as set forth in the ANSI Z83.20 Standard), finished with a high emissivity rated, corrosion resistant, black coating with an emissivity level documented at .92 or higher.
 - E. Emitter tube: Shall be 3 inch O.D. 16ga. aluminized steel finished with a high emissivity rated, corrosion resistant, black coating with an emissivity level documented at .92 or higher.
 - F. Burner type: Unit shall be a positive pressure power burner with a combustion fan upstream of the burner and exhaust gases for component longevity, maximum combustion efficiency, and energy transfer. Negative pressure (pull through) type appliances will not be allowed.
 - G. Fan enclosure: Combustion fan shall be totally housed inside burner control box and not exposed. Appliances with exposed combustion/exhauster fans shall not be permitted.
 - H. Burner: Aluminized-steel venturi burner.
 - I. Tube connections: The heater's combustion chamber and radiant emitter tube shall incorporate a 3 inch slip-fit, interlocking connection in which the upstream tube slides into the next tube and is held by a bolted clamp. A butted tube connection system shall not be permitted.
 - J. Ignition system: Hot surface silicon carbide capable of temperatures achieving 2400°F. Igniter shall be readily accessible and serviceable without the use of tools. Spark ignition systems shall not be permitted.
 - K. Reflectors: Shall be .025 polished aluminum with a multi-faceted design which includes reflector end caps. Reflector shall have a polished bright finish with clear visual reflection ability. (A sample will be required at time of submittal). Reflector shall have a minimum of 7 sheet metal bends in its fabrication to optimize downward radiation. Reflectors shall be rotatable from 0 to 45 degrees when required. The heater's reflector hanging system shall be designed to permit expansion while minimizing noise and/or rattles.
 - L. Control box: Heater's exterior control chassis shall be constructed of corrosion resistant enameled steel.
 1. Air intake: An air intake collar shall be supplied as part of the burner control assembly to accept a 4 inch O.D. supply duct.
 2. The heater's control compartment shall be easily serviceable by removing one (1) panel.
 - M. Heaters shall be equipped with a sight glass allowing a visual inspection of igniter and burner operation from the floor. Sight glass visible only at appliance level shall not be permitted.
 - N. The heaters shall utilize a downstream turbulator baffle for maximum heat transfer.
 - O. Heater shall be supplied with a Type 1 rubber gas hose.
 - P. Burner Safety Controls:
 1. Heater controls shall include two safety differential pressure switches: one to monitor exhaust back pressure and one to monitor combustion air flow, so as to provide complete burner shutdown due to insufficient combustion air or flue blockage.
 2. The heater shall incorporate a moisture and corrosion resistant potted circuit board and recycle the heater after an inadvertent shutdown.
 3. The heater's control system shall be designed to shut off the gas flow to the main burner in the event either a gas supply or power supply interruption occurs.
 4. The heater's blower motor shall be thermally protected and the motor's impeller shall be balanced.
 5. Heater control assembly shall include two indicator lights. One indicator shall validate air flow. One indicator light shall indicate burner operation.
 6. The heater's air flow control system shall provide a 45 second pre-purge prior to initiating burner operation, effectively removing all products of combustion from heat exchanger and/or radiant tubes.
 7. No condensation shall form as a result of combustion in the combustion chamber or radiant tubes while at operating temperatures.
 - Q. Venting: Shall be per manufacturer approval and specifications.
 - R. Thermostat: Devices and wiring are specified in Division 23 Section "Instrumentation and Control for HVAC."
 1. Thermostat: Single-stage, digital programmable wall-mounting type with 50 to 90 deg F (10 to 32 deg C) operating range.