



SPACE-RAY®

INFRARED GAS HEATERS

LTS SERIES

*Pull Through Tube Heater
Negative Pressure*



Solutions For Commercial & Industrial Heating



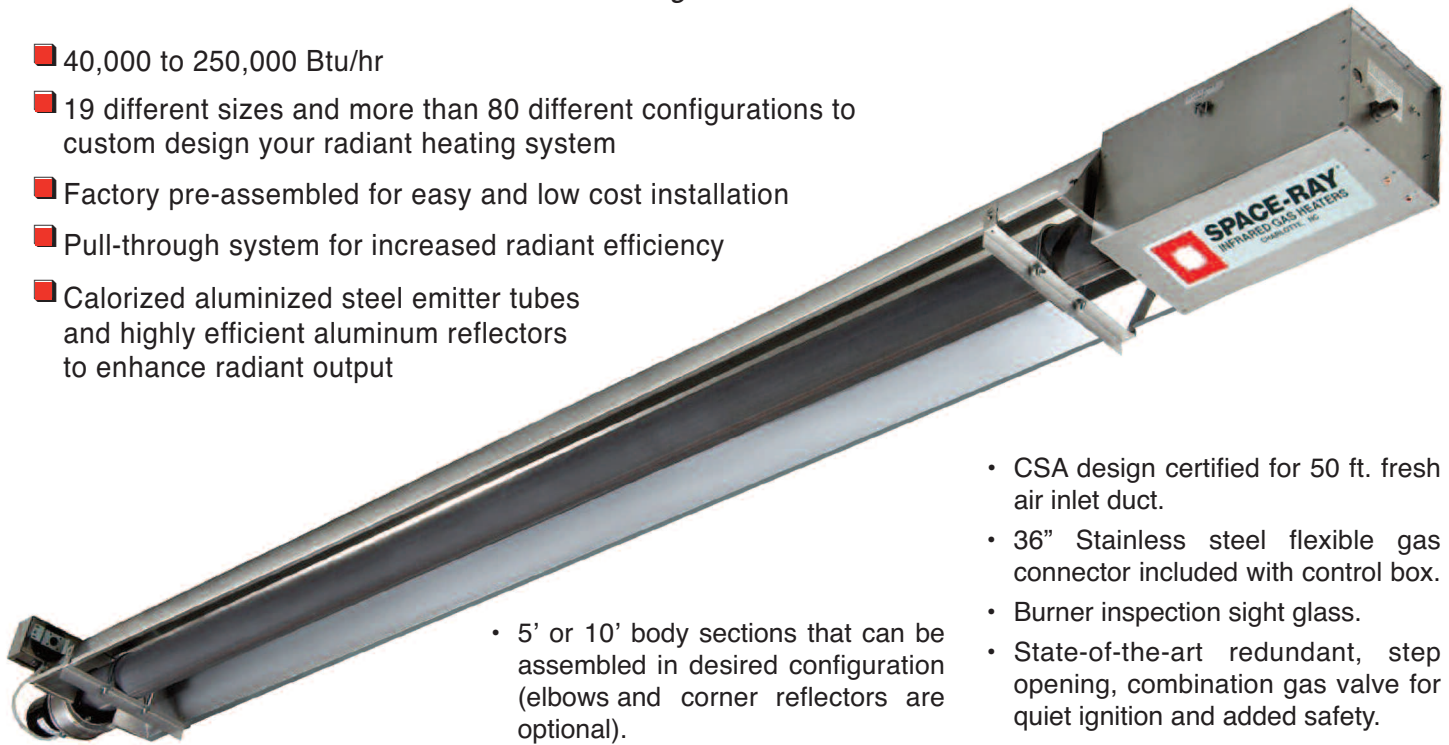


SPACE-RAY®
INFRARED GAS HEATERS

LTS Series Infrared Tube Heaters

Solutions For Commercial & Industrial Heating Since 1949

- 40,000 to 250,000 Btu/hr
- 19 different sizes and more than 80 different configurations to custom design your radiant heating system
- Factory pre-assembled for easy and low cost installation
- Pull-through system for increased radiant efficiency
- Calorized aluminized steel emitter tubes and highly efficient aluminum reflectors to enhance radiant output



- Pull Through System:**
- Pull-Through System – the products of combustion are pulled through the combustion chamber for increased radiant efficiency and greater safety.
 - Vertical, horizontal or common venting
 - CSA design certified for maximum 75 ft. horizontal sidewall venting.
 - Draft inducer is equipped with permanently lubricated, totally enclosed, fan cooled and heavy duty ball bearing motor for maintenance-free operation.
 - Draft inducer assembly can be rotated 45° or 90° for horizontal venting.
 - No draft hoods, totally enclosed combustion chamber. Vented or indirect vented operation.

- Radiant Emitter Tube System:**
- All radiant emitter tubes are 16 gauge, 4" O.D. calorized steel.

- 5' or 10' body sections that can be assembled in desired configuration (elbows and corner reflectors are optional).
- Aluminized steel or alumi-therm (titanium alloy) emitter tubes are calorized for long life and high radiant efficiency – will not flake or peel, and is corrosion resistant.
- The calorization process produces an emitter tube which is highly radiant absorptive on the interior and highly radiant emissive on the exterior.
- Ideal for high humidity or corrosive applications.
- Suitable for horizontal or angle mount up to 45°.
- CSA design certified for incline mounting up to 2/12 pitch roof structure
- 5 year limited warranty on the emitter tube.

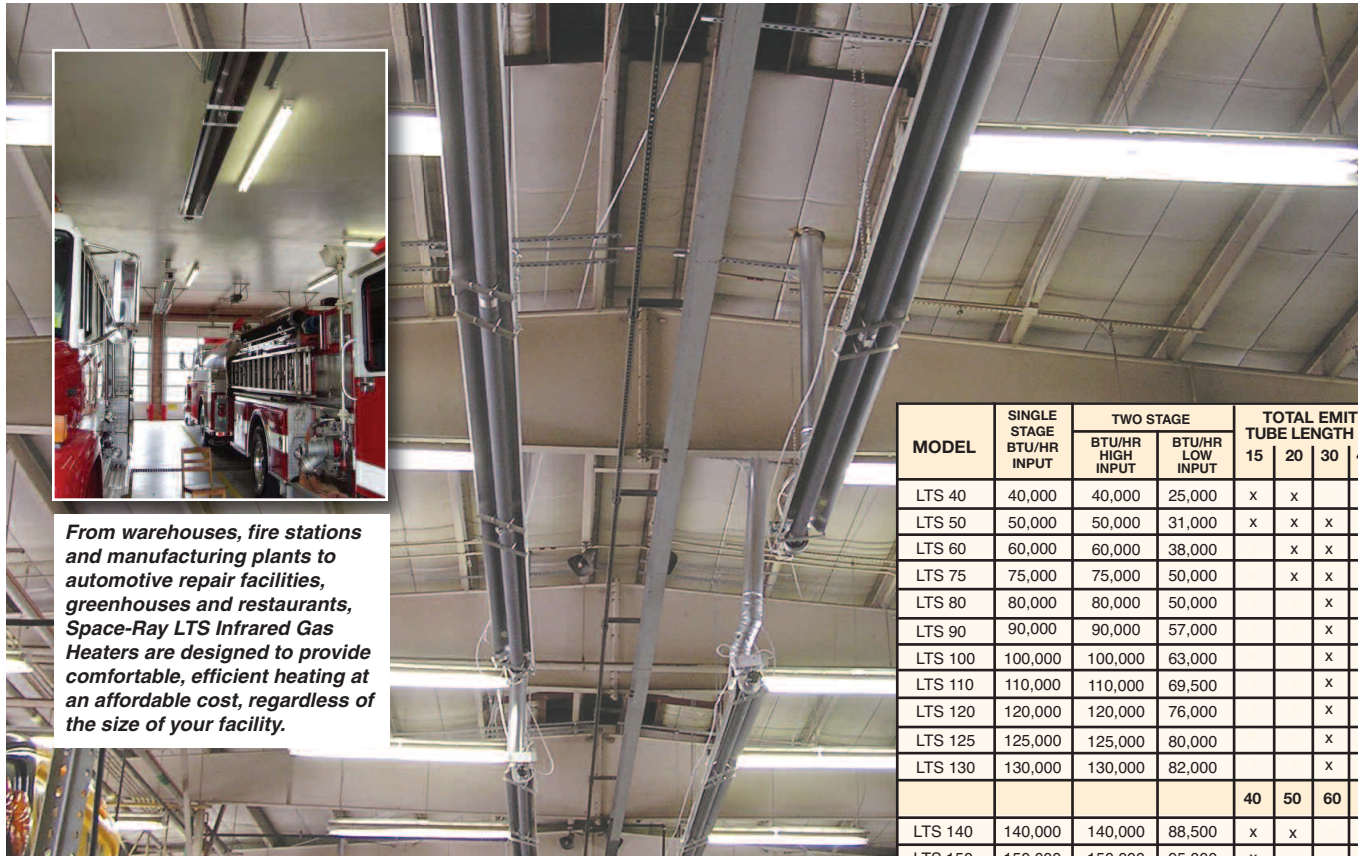
- Burner & Control System:**
- Monitoring light system for on-line diagnosis.
 - One piece cast iron burner with stainless steel flame retainer.
 - 10 year limited warranty on burner.
 - Inside or outside air for combustion.

- CSA design certified for 50 ft. fresh air inlet duct.
- 36" Stainless steel flexible gas connector included with control box.
- Burner inspection sight glass.
- State-of-the-art redundant, step opening, combination gas valve for quiet ignition and added safety.
- Diaphragm air proving switch for proof of venting before gas flow and ignition.
- Direct spark ignition system with 100% gas shut-off safety Control (30 second pre-purge).
- Quick slip-on electrical connectors and quick 120-volt terminal block connection.
- Uncomplicated maintenance access.

- Reflector System:**
- Shipped factory assembled on tube body.
 - Highly efficient aluminum reflectors with reflectivity rating of 97.5%.
 - Reflector ends are enclosed for maximum radiant heat output and minimum convection loss.
 - Optional corner and side reflectors.
 - Optional decorative grille.
 - Easy-to-use mounting brackets.



LTS Models & Dimensions



From warehouses, fire stations and manufacturing plants to automotive repair facilities, greenhouses and restaurants, Space-Ray LTS Infrared Gas Heaters are designed to provide comfortable, efficient heating at an affordable cost, regardless of the size of your facility.

MODEL	SINGLE STAGE BTU/HR INPUT	TWO STAGE		TOTAL EMITTER TUBE LENGTH - FEET				
		BTU/HR HIGH INPUT	BTU/HR LOW INPUT	15	20	30	40	50
LTS 40	40,000	40,000	25,000	x	x			
LTS 50	50,000	50,000	31,000	x	x	x		
LTS 60	60,000	60,000	38,000		x	x		
LTS 75	75,000	75,000	50,000		x	x		
LTS 80	80,000	80,000	50,000			x	x	
LTS 90	90,000	90,000	57,000			x	x	
LTS 100	100,000	100,000	63,000			x	x	
LTS 110	110,000	110,000	69,500			x	x	
LTS 120	120,000	120,000	76,000			x	x	
LTS 125	125,000	125,000	80,000			x	x	x
LTS 130	130,000	130,000	82,000			x	x	x
				40	50	60	70	80
LTS 140	140,000	140,000	88,500	x	x			
LTS 150	150,000	150,000	95,000	x	x			
LTS 160	160,000	160,000	100,000	x	x			
LTS 175	175,000	175,000	110,000	x	x			
LTS 180	180,000	180,000	114,000		x	x	x	x
LTS 200	200,000	200,000	125,000		x	x	x	x
LTS 225	225,000	225,000	N/A		x	x	x	x
LTS 250	250,000	250,000	N/A		x	x	x	x

CONTROL SUFFIX	TYPE OF GAS	CONTROL OPTION DESCRIPTION
N5 / L5	Natural / Propane	Single Stage Gas Valve - Single Stage Input
N7 / L7	Natural / Propane	Two Stage Gas Valve - Modulating Input - High/Low Fire

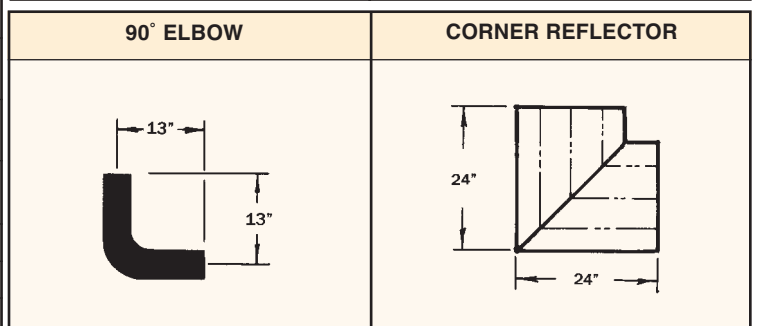
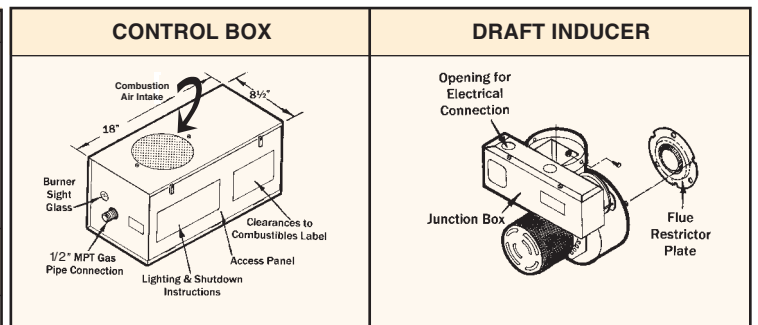
* Indicate model number based on Btu/hr input (e.g. 100,000 Btu/hr), emitter length (e.g. 30 ft.), Control Suffix (e.g. Natural Gas single stage input) . The unit selection would be LTS 100-30-N5

GAS TYPE	BURNER PRESSURE	SUPPLY PRESSURE		VOLTAGE	AMPS	IGNITION TYPE	FLUE CONNECTION	OUTSIDE COMBUSTION AIR CONNECTION
		MIN	MAX					
NATURAL	3.5" W.C.	5" W.C*	14" W.C.	120 VAC	2.6	DIRECT SPARK	4" Round for LTS (40-175) 6" Round for LTS (200-250)	4" Round for LTS (40-75) 6" Round for LTS (80-250)
PROPANE	10" W.C.	11" W.C.**	14" W.C.	60 HZ				

* 7" W.C. for LTS (180-250) **12" W.C. for LTS (180-250) NOTE: For all installations higher than 2000 ft. above sea level, please consult the factory regarding recommended derating of heaters.

Dimensions

LTS - BOTTOM VIEW		LTS - END VIEW	
MODEL	TOTAL TUBE LENGTH (FT)	OVERALL DIMENSION "L"(FT)	
LTS (40, 50)	15'	17' 3"	
LTS (40, 50, 60, 75)	20'	22' 3"	
LTS (50, 60, 75, 80, 90, 100, 110, 120, 125, 130)	30'	32' 3"	
LTS (80, 90, 100, 110, 120, 125, 130, 140, 150, 160, 175)	40'	42' 3"	
LTS (125, 130, 140, 150, 160, 175, 180, 200, 225, 250)	50'	52' 3"	
LTS (180, 200, 225, 250)	60'	62' 3"	
LTS (180, 200, 225, 250)	70'	72' 3"	
LTS (180, 200, 225, 250)	80'	82' 3"	



LTS Mounting Heights, Clearances & Configurations

Minimum Recommended Mounting Heights

MODEL	HEIGHT AT HORIZONTAL	HEIGHT AT 45° ANGLE
LTS 40	10 feet	9 feet
LTS 50	11 feet	10 feet
LTS 60	12 feet	11 feet
LTS 75, 80, 90	13 feet	12 feet
LTS 100, 110, 120, 125	14 feet	13 feet

MODEL	HEIGHT AT HORIZONTAL	HEIGHT AT 45° ANGLE
LTS 130, 140, 150	15 feet	14 feet
LTS 160, 175	16 feet	15 feet
LTS 180, 200	18 feet	17 feet
LTS 225, 250	20 feet	19 feet

This chart is intended as a guide only, as heaters may be mounted at various heights and angles. Since straight tube heaters are always hotter at the burner end than at the exhaust end, always observe the minimum recommended mounting heights shown above for human comfort and mount heaters as high as possible. Use LTU series for spot heating. Please consult your local Space-Ray Representative for a detailed analysis of your particular infrared heating requirements.

Minimum Clearances To Combustibles

MINIMUM CLEARANCES TO COMBUSTIBLES	MODEL NO.	SIDE	CEILING	BELOW	END	(45°) FRONT	(45°) REAR
	LTS (40, 50)	27"	6"	40"	30"	48"	12"
	LTS (60, 75)	27"	6"	60"	30"	48"	12"
	LTS (80, 90)	52"	6"	84"	30"	52"	12"
	LTS (100)	66"	6"	88" ^{**}	40"	66"	20"
	LTS (110, 120, 125, 130)	66"	6"	101" ^{**}	40"	66"	20"
	LTS (140, 150, 160, 175)	84"	6"	106" ^{**}	48"	84"	24"
	LTS (180, 200, 225, 250)	84"	18"	132" ^{**}	48"	84"	24"

*When used indirect vented, clearances to ceiling from top of exhaust hood must be 12" on LTS (40-75), and 18" on LTS (80-250). If optional corner or U-bend reflectors are not used, clearance must be 18". **Clearance below the tube reduces to 72", 20 ft. downstream from the control box. Note: Consult factory if reduced clearances are required.

Configurations

The LTS series, with more than 80 different configurations, offers optimum flexibility in custom designing an infrared heating system. The LTS series is available in multiple configurations (straight, L, Z, and expanded U-shape) with lengths from 15' to 80' long. For added versatility, 90° elbows, corner reflectors and side reflectors are available for close area mounting near walls, doors and corners.

LEGEND	LTS SERIES			
<ul style="list-style-type: none"> CONTROL BOX DRAFT INDUCER 10 FT. BODY SECTION 5 FT. BODY SECTION 90° ELBOW 	STRAIGHT	L-SHAPE	EXPANDED U-SHAPE	Z-SHAPE

Combustion Air and Ventilation

Combustion air and venting requirements for all gas-fired heating equipment must be provided per the National Fuel Gas Code NFPA54 or the authority having jurisdiction over the installation. In contaminated atmospheres or high humidity areas, optional outside air for combustion can be supplied. Heaters can be common vented, vented, or indirect vented. Refer to the Installation and Operation Instructions for further information. A vented installation must be vented to the outside of the building with a flue pipe. An indirect vented installation requires a minimum ventilation flow of 4 CFM per 1000 Btu/hr of total installed heater capacity on natural gas by either gravity or power ventilation (4.18 CFM per 1000 Btu/hr for propane). For indirect vented applications, building exhaust openings must be located above the level of the heaters and inlet air openings must be located below the level of the heaters.

For Your Safety

OPERATE SPACE-RAY GAS INFRARED HEATERS WITH PROPER CARE AND OBSERVE ALL SAFETY PRECAUTIONS. Installation and service must be performed by a licensed contractor. The installation must conform to local codes. In the absence of local codes, the installation must conform to the National Fuel Gas Code ANSI Z223.1 (latest edition, also known as NFPA54) or CAN/CSA-B149 installation codes (latest edition). These codes are available from the National Fire Protection Association, Inc., Batterymarch Park, Quincy, MA 02269, or the Canadian Gas Association, 55 Scarsdale Road, Toronto, Ontario M3B 2R3 Canada.



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