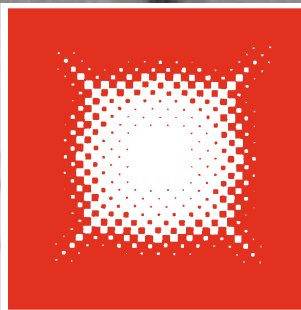


SPECIFICATIONS



SPACE-RAY®

Infrared Gas Heaters For Industry Since 1958

LOW INTENSITY

ETS/ETU Series Tube Heaters



SPACE-RAY®...A TRUSTED NAME IN INFRARED HEATING

At Space-Ray, industrial comfort heating is a challenge we take seriously. We have been manufacturing gas-fired infrared heating systems since 1958. The quality and performance of our heaters are based on over 45 years of field experience and exposure to a wide variety of industrial heating problems. Our reputation is built upon a solid track record for providing radiant efficient, easy-to-install, and high quality infrared heating equipment.

Space-Ray infrared tube heaters are ideal for complete building heat or even spot heating needs. The best applications include: manufacturing plants, warehouses, auto dealerships, aircraft hangars, loading docks, weld shops, truck or auto service areas, car washes, fire stations, greenhouses, gymnasiums, garages, machine shops, tennis courts, swimming pools, maintenance shops, farm buildings and many more.

HEATING TECHNOLOGY FOR THE NEXT MILLENNIUM

Space-Ray infrared heaters heat like the sun by transferring radiant heat energy directly to the areas to be heated. Radiant energy is absorbed by concrete floors, objects and people, and re-radiated to warm the surrounding area. This principle is similar to the sun's radiant heat energy heating Earth but not the upper atmosphere. This heating technology creates a comfort zone at floor level, not at the ceiling, and is much more efficient than conventional forced air heating systems.

30%-50% FUEL SAVINGS

A highly radiant efficient Space-Ray infrared heating system can normally save a building owner 30% to 50% in annual fuel costs when compared to forced air heating systems. In fact, some Space-Ray customers report fuel savings as high as 70% with a payback of less than one year. With a Space-Ray system, your investment payback accrues not only from reduced energy costs, but from reduced maintenance costs, too. So when you think industrial heating, think Space-Ray. Call us at 1-800-438-4936 for the name of our representative nearest you.

ETS/ETU SERIES FEATURES

GENERAL FEATURES

- 19 different Btu/hr sizes and more than 100 different configurations to custom design your infrared heating system.
- CSA design certified
- Vented or indirect vented operation
- Sidewall or through-the-roof venting
- Natural and propane gas models

PULL THROUGH SYSTEM

- Products of combustion are pulled through the combustion chamber for increased radiant efficiency and greater safety
- No draft hoods, totally enclosed combustion chamber
- Heavy-duty draft inducer with permanently lubricated, totally enclosed, fan cooled, and heavy-duty ball bearing motor for maintenance-free operation
- Draft inducer can be rotated 45° or 90° for sidewall venting

BURNER SYSTEM

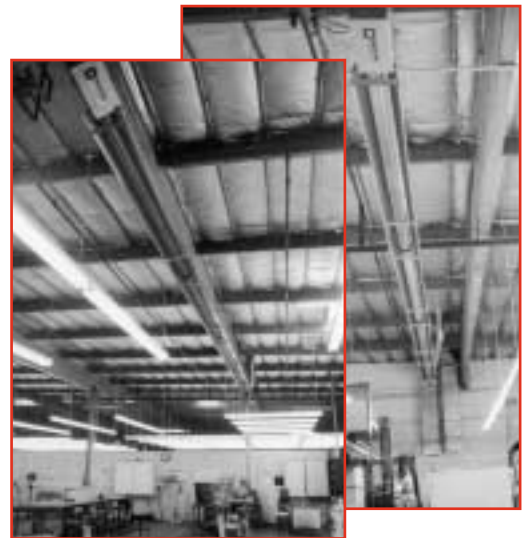
- Heavy-duty cast iron burner
- 10-year limited warranty on burner
- Inside or outside air for combustion
- Up to 50 ft. outside combustion air duct capability
- Standard 6" combustion air duct opening
- Reliable direct spark ignition system and 100% gas shut-off safety control
- 30-second pre-purge prior to ignition
- State-of-the-art step opening redundant combination gas valve for quiet ignition and added safety
- Diaphragm air switch for proof of venting before gas flow and ignition
- Diagnostic monitoring light system
- Burner inspection sight glass

RADIANT EMITTER TUBE SYSTEM

- 4" O.D. heavy-duty calorized aluminized steel or alumi-therm steel combustion chamber (10 feet) and heavy duty hot-rolled steel emitter tubes
- 3-year limited warranty on the emitter tubes
- Suitable for horizontal or angle mounting up to 45°
- Optional 90° elbows
- Up to 75 feet sidewall vent capacity

REFLECTOR SYSTEM

- Highly efficient aluminum reflectors with reflectivity rating of 97.5%
- Optional end, corner, side and U-bend reflectors
- Optional decorative grille
- Individual reflectors can be rotated up to 45° to direct heat where needed
- Easy-to-use mounting brackets



MODEL SELECTIONS

MODEL	BTU/HR INPUT	TOTAL EMITTER TUBE LENGTH*			
		15 FT**	20 FT	30 FT	40 FT 50 FT
ETS/U 40	40,000	X	X		
ETS/U 50	50,000	X	X	X	
ETS/U 60	60,000		X	X	
ETS/U 75	75,000		X	X	
ETS/U 80	80,000			X	X
ETS/U 90	90,000			X	X
ETS/U 100	100,000			X	X
ETS/U 110	110,000			X	X
ETS/U 120	120,000			X	X
ETS/U 125	125,000			X	X

MODEL	BTU/HR INPUT	TOTAL EMITTER TUBE LENGTH*					
		30 FT	40 FT	50 FT	60 FT	70 FT	80 FT
ETS/U 130	130,000	X	X	X			
ETS/U 140	140,000		X	X			
ETS/U 150	150,000		X	X			
ETS/U 160	160,000		X	X			
ETS/U 175	175,000		X	X			
ETS/U 180	180,000			X	X	X	X
ETS/U 200	200,000			X	X	X	X
ETS/U 225	225,000			X	X	X	X
ETS/U 250	250,000			X	X	X	X

*Indicate model number based on Btu/hr input (e.g., 100,000 Btu/hr), total emitter length, (e.g., 40 feet) and gas type (e.g., natural gas). The unit selection for a straight tube would be ETS100-40-N and for a U-tube would be ETU100-40-N. **Available only on ETS models.

GAS TYPE	BURNER PRESSURE	SUPPLY PRESSURE		VOLTAGE	AMPS	IGNITION TYPE
		MIN	MAX			
NATURAL	3.5" W.C.	5" W.C.*	14" W.C.	120 VAC 60 HZ	2.6	DIRECT SPARK
PROPANE	10" W.C.	11" W.C.**	14" W.C.			

NOTE: For all installations higher than 2000 ft. above sea level, please consult the factory regarding recommended derating of heaters.

*7" W.C. for ETS/ETU (180-250)

**12" W.C. for ETS/ETU (180-250)

DIMENSIONS

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

ETU - BOTTOM VIEW		ETU - END VIEW
MODEL	TOTAL TUBE LENGTH (FT)	OVERALL DIMENSION "L" (FT)
ETU (40, 50, 60, 75)	20'	12'9"
ETU (50, 60, 75, 80, 90, 100, 110, 120, 130)	30'	17'9"
ETU (80, 90, 100, 110, 120, 125, 130, 140, 150, 160, 175)	40'	22'9"
ETU (125, 130, 140, 150, 160, 175, 180, 200, 225, 250)	50'	27'9"
ETU (180, 200, 225, 250)	60'	32'9"
ETU (180, 200, 225, 250)	70'	37'9"
ETU (180, 200, 225, 250)	80'	42'9"

ETS AND ETU		CONTROL BOX

ETS OPTIONS

Flue Connection: 4" Round for ETS/U (40-75)
6" Round for ETS/U (80-250)

Fresh Air Connection: 4" Round for ETS/U (40-75)
6" Round for ETS/U (80-250)

MINIMUM RECOMMENDED MOUNTING HEIGHTS

MODEL	HEIGHT AT HORIZONTAL	HEIGHT AT 45° ANGLE
ETS/U 40	10 feet	9 feet
ETS/U 50	11 feet	10 feet
ETS/U 60	12 feet	11 feet
ETS/U 75	13 feet	12 feet
ETS/U 80 & 90	13 feet	12 feet
ETS/U 100 & 110	14 feet	13 feet

MODEL	HEIGHT AT HORIZONTAL	HEIGHT AT 45° ANGLE
ETS/U 120 & 125	14 feet	13 feet
ETS/U 130 & 140	15 feet	14 feet
ETS/U 150	15 feet	14 feet
ETS/U 160 & 175	16 feet	15 feet
ETS/U 180 & 200	18 feet	17 feet
ETS/U 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. Use ETU 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
	ETS/U (40, 50)	27"	6"	40"	30"	48"	12"
	ETS/U (60, 75)	27"	6"	60"	30"	48"	12"
	ETS/U (80, 90)	52"	6"	84"	30"	52"	12"
	ETS/U 100	66"	6"	88"	40"	66"	20"
	ETS/U (110, 120, 125, 130)	66"	6"	101"	40"	66"	20"
	ETS/U (140, 150, 160, 175)	84"	6"	106"	48"	84"	24"
	ETS/U (180, 200, 225, 250)	86"	18"	132"***	48"	84"	24"

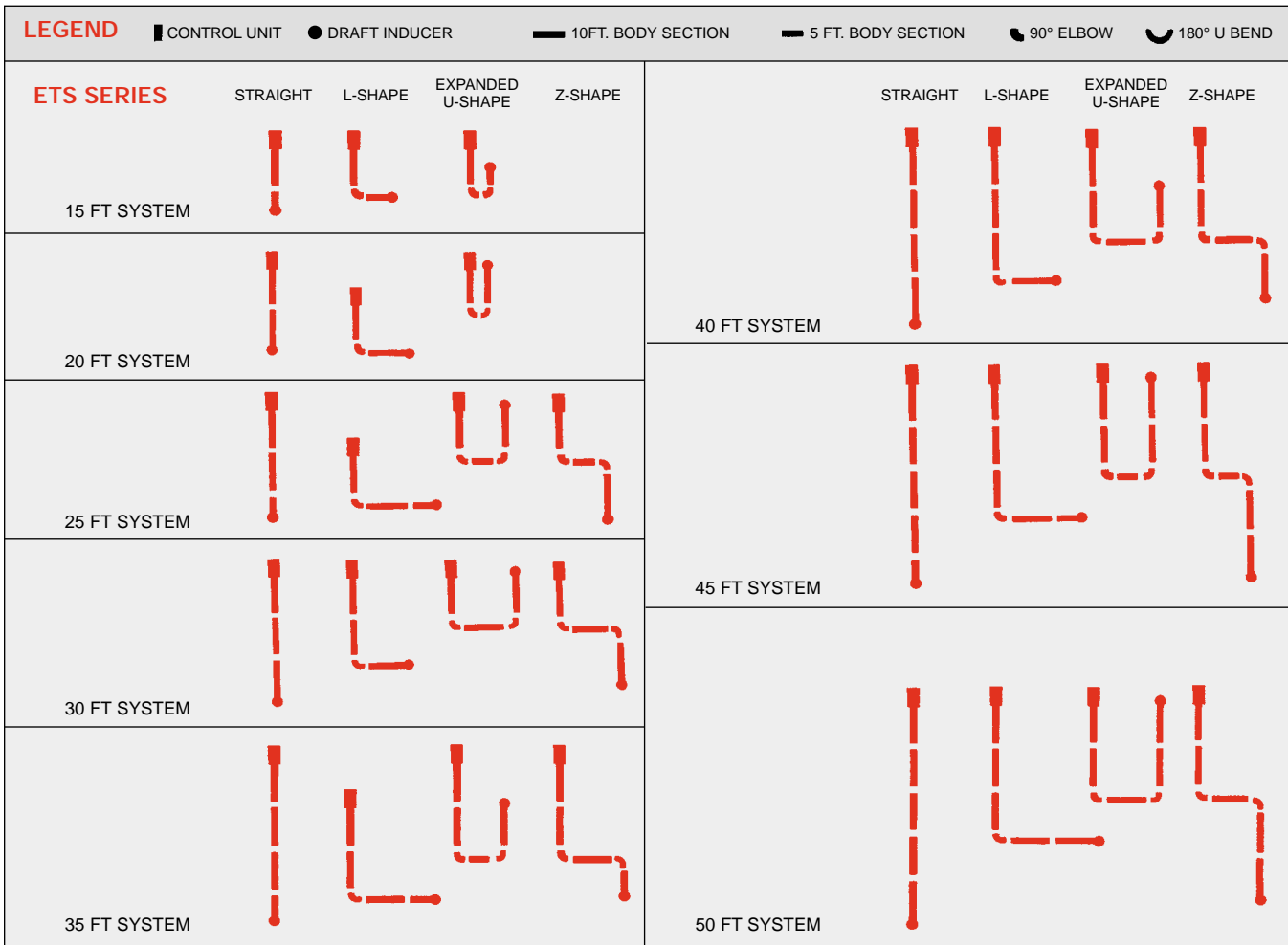
*When used indirect vented, clearances to ceiling from top of exhaust hood must be 12" on ETS/U (40-75), and 18" on ETS/U (80-250). If optional corner or U-bend reflectors are not used, clearance must be 18". **Clearance below the heater is 132" for the first 20 ft. of the emitter tube and reduces to 72" 20 ft. downstream from the control box.

Note: Consult factory if reduced clearances are required.

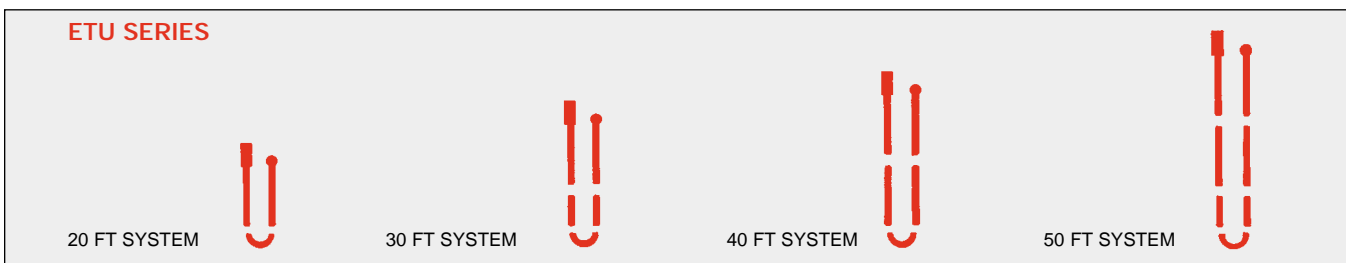


ETS/ETU SERIES LAYOUTS

The ETS/ETU series, with more than 100 different configurations, offers optimum flexibility in custom designing an infrared heating system. The ETS 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. The ETU series is available in seven different configurations and provides more uniform radiant heat energy distribution. The ETU series is ideal for high heat loss areas and spot heating.



Only 15 ft. to 50 ft. systems are shown. Please refer to the Installation and Operation Instructions for complete layouts.



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, direct 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 on 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 MB3 2R3 Canada.

SPACE-RAY

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