

DST SERIES TUBE HEATERS

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

SUBMITTED BY: _____

DATE: _____

JOB TITLE: _____ CONTRACTOR: _____

ADDRESS: _____ PHONE #: _____

CITY: _____ ADDRESS: _____

STATE: _____ ZIP: _____ CITY: _____

STATE: _____ ZIP: _____

ENGINEER: _____

LOCAL REPRESENTATIVE: _____

NOTES: _____

QTY.	MODEL #	TAG	GAS TYPE	BTU/h INPUT (HIGH FIRE)	BTU/h INPUT (LOW FIRE)	TYP. OR RCMD. MOUNTING HEIGHTS ¹	UNIT WEIGHT	OVERALL UNIT LENGTH
	DST-60N		Natural Gas	60,000	40,000	8 to 14 ft.	150 lbs.	119"
	DST-60P		Propane	60,000	50,000	8 to 14 ft.	150 lbs.	119"

¹ Minimum mounting height is 79" above floor level. Typical or recommended mounting heights are provided as a guideline. Actual conditions may dictate variations from this data.

DST SERIES FEATURES



- CSA Design Certified for indoor/outdoor commercial and outdoor residential use.
- 3/4" x 3/4" modular, decorative grille with large openings for enhanced radiant output.
- Available for natural or propane gas.
- Two heaters in one (high/low fire) allows application flexibility.
- 30 linear feet of radiant tube provides increased efficiency and heat output.
- Highly polished internal reflector for increased efficiency and low top clearance.
- Unified component panel with easy access decreases heater service time.
- Service issues can be identified at the floor level using the Smart LED - diagnostic light.

DETROIT RADIANT PRODUCTS CO.



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APPROVALS

- ANSI Z83.20 and CSA 2.34.
- ANSI Z83.26 and CSA 2.37.
- Residentially Certified to CSA No. 7-89.
- Outdoor residential approval.
- Indoor & outdoor commercial approval.

COMBUSTION AIR INLET & VENTING

- Preset 4 in. combustion air inlet collar.
- Sidewall or roof venting.

ELECTRICAL REQUIREMENT

- 120VAC, 60 Hz. Primary.
- 24V control standard.

INLET PIPE SIZE

- 1/2" NPT.

AMP DRAW 120V MODELS

- 120V - 1.10 starting, 1.10 running.

CONTROLS

- 24 VAC control.
- 24 VAC control relay option available.
- 100% safety shut-off.
- Self-diagnostic circuit board.
- Air proving safety switches.
- Direct spark ignition with direct sense.

GAS SUPPLY (Inches W.C.)

- Manifold pressure:
 - High Fire: Nat 3.5; Prop 10.0
 - Low Fire: Nat 1.5; Prop 4.9
- Min. Inlet pressure: Nat 5.0; Prop 11.0
- Max. Inlet pressure: Nat 14.0; Prop 14.0
- 1/2" x 24" 304 stainless steel flexible gas connector included.

INDICATOR LIGHTS

- Service issues can be identified at the floor level using the Smart LED diagnostic light.

BURNER CONTROL BOX

- Easy access unified component panel.
- Totally enclosed components.

RADIANT TUBES

- 30 linear feet of radiant tube.

REFLECTOR

- Highly polished internal reflector increases efficiency and low top clearance.
- 3/4" x 3/4" decorative grille with large openings for enhanced radiant output.

LIMITED WARRANTY*

- 1 year - Internal components.
- 3 years - Radiant tubes.
- 5 years - Burner.

*Extended warranty available.

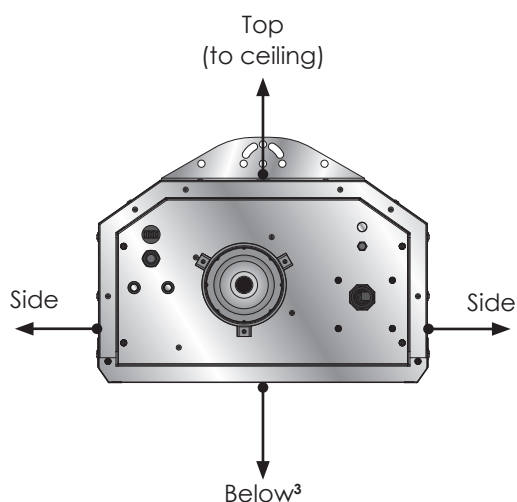
DST CLEARANCES TO COMBUSTIBLES (IN INCHES)

MODEL NO.	MOUNTING ANGLE ²	TOP	SIDE		ENDS	BELOW ³	ROTATIONAL ARC
			FRONT	BEHIND			
ALL MODELS	0°	6	12	12	12	72	N/A
	45°	15	60	15	12	60	72

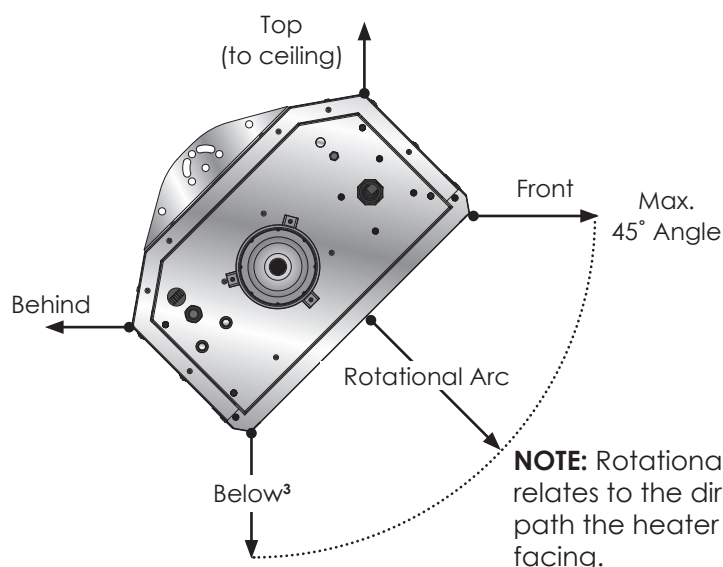
² Heaters mounted on an angle between 1° to 45° must maintain clearances posted for 0° or 45°; whichever is greater.

³ The minimum mounting height is 79" above floor level.

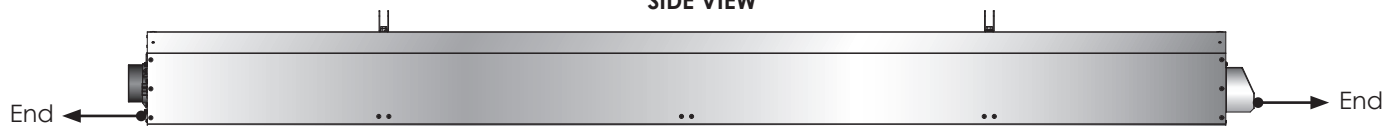
END VIEW - 0° MOUNTING ANGLE



END VIEW - 45° MOUNTING ANGLE

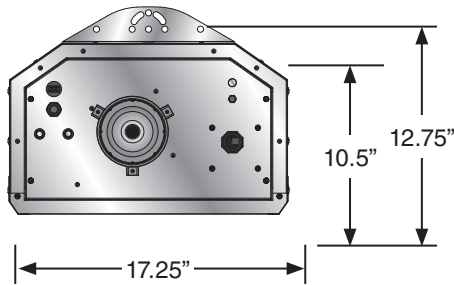
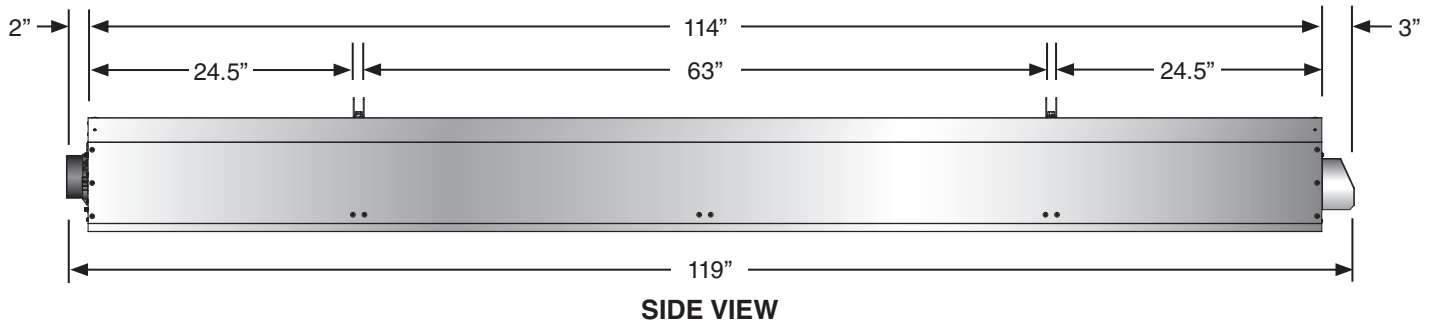


SIDE VIEW



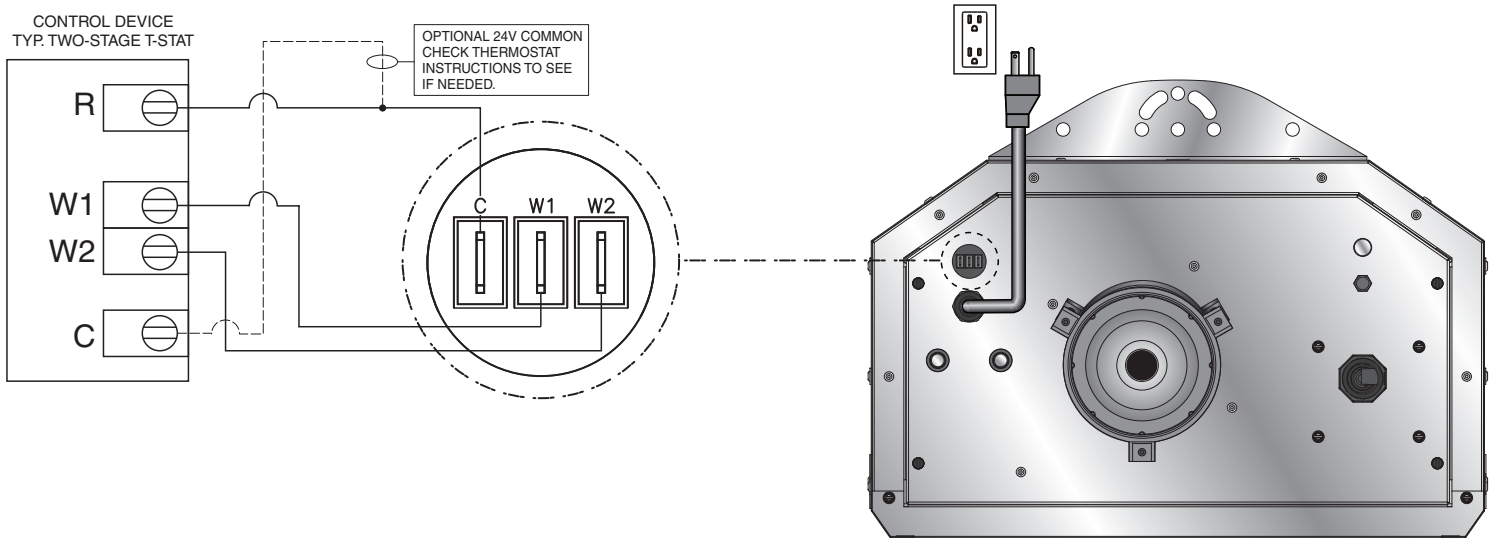
DST SERIES FIELD DATA

DIMENSIONAL DATA



FIELD WIRING DIAGRAMS

Controlling a heater with a single control device.



OPTIONAL ACCESSORIES

QTY.	PART NO.	DESCRIPTION	NOTES
	4000-01V	40VA external transformer	40VA transformer 120-25VAC. Mounted on a 4" x 4" base plate.
	ERK	External relay kit	Used for multiple heaters controlled by one thermostat. One required per heater.
	PLQ	Clearance warning plaque	Hung below heater, restates the clearance to combustible warning.

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

DST SERIES WRITTEN SPECIFICATIONS

PRODUCTS

1. TUBULAR INFRARED HEATERS

- A. Basis-of-design product: Subject to compliance with requirements, provide Detroit Radiant Products Company; **Re-Verber-Ray® DST 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 include a defined input differential. Heater must be CSA Design Certified to operate at an input differential of at least 30% between the low and nominal rated input modes.
- D. Combustion chamber: Shall be 4 inch O.D. 16ga. Titanium stabilized aluminized steel (150-200 MBH to allow for the operating temperature to exceed the 1030°F as set forth in the ANSI Z83.20 standard) or aluminized steel, finished with a high emissivity rated, corrosion resistant, black coating with an emissivity level documented at .92 or higher.
- E. Emitter tube: Shall be 4 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. Cast elbows: Shall be high temperature resistant.
- G. 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.
- H. Fan enclosure: Combustion fan shall be totally housed inside component panel and not exposed. Appliances with exposed combustion/exhauster fans shall not be permitted.
- I. Burner: Stainless-steel venturi burner. The flame anchoring screen shall have a minimum temperature rating equivalent to 304 grade stainless steel. Non stainless steel burners shall not be permitted.
- J. Tube connections: The heater's combustion chamber and radiant emitter tube shall incorporate a slip-fit, interlocking connection in which the upstream tube slides into the next tube. A butted tube connection system shall not be permitted.
- K. Ignition system : Direct spark igniter with flame rod sensing capabilities.
- L. 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 12 sheet metal bends in its fabrication to optimize downward radiation. The heater's reflector hanging system shall be designed to permit expansion while minimizing noise and/or rattles.
- M. Component panel: 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 controls shall be easily serviceable by removing component panel for accessibility.
 - 3. The rating label shall bear the outdoor certification approval.
- N. Housing shall be constructed of 430 Series stainless steel.
- O. 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 a appliance level shall not be permitted.
- P. Heater shall be equipped with ¾" modular egg crate grill.
- Q. The heater shall be of a low profile 'designer series' design and be capable of mounting the unit with hanging brackets which shall be attached directly to the heater's chassis and be capable of mounting the heater at a 0 to 30 degree angle from horizontal.
- R. The heaters shall utilize a downstream turbulator baffle and Dimpled Baffle-MAX for maximum heat transfer.
- S. Heater shall be supplied with a stainless steel flexible gas connector.
- T. Burner Safety Controls:
 - 1. Heater controls shall include a safety differential pressure switch to monitor combustion air flow, as to provide complete burner shutdown due to insufficient combustion air or flue blockage.
 - 2. The heater shall incorporate a self-diagnostic ignition module, and recycle the heater after an inadvertent shutdown.
 - 3. Heater shall include a Smart LED self-diagnostic light to diagnose service issues at the floor level.
 - 4. 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.
 - 5. The heater's blower motor shall be thermally protected and the motor's impeller shall be balanced.
 - 6. Heater control assembly shall include a manual valve to change the settings of the heater input between high fire, low fire, and off.
 - 7. The heater's air flow control system shall provide a 7 second pre-purge prior to initiating burner operation and a 240 second post-purge upon completion, effectively removing all products of combustion from heat exchanger and/or radiant tubes.
 - 8. No condensation shall form as a result of combustion in the combustion chamber or radiant tubes while at operating temperatures.
 - 9. Thermostat control shall be single-stage operating on 24 volts.
- U. Venting: shall be per manufacturer approval and specifications.
- V. 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°F (10 to 32°C) operating range.