

# DST SERIES TUBE HEATERS

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

SUBMITTED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

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JOB TITLE: \_\_\_\_\_ CONTRACTOR: \_\_\_\_\_

ADDRESS: \_\_\_\_\_ PHONE #: \_\_\_\_\_

CITY: \_\_\_\_\_ ADDRESS: \_\_\_\_\_

STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_ CITY: \_\_\_\_\_

STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

ENGINEER: \_\_\_\_\_

LOCAL REPRESENTATIVE: \_\_\_\_\_

NOTES: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

QTY.	MODEL #	TAG	INDICATE GAS TYPE	INPUT BTU/h High Fire	INPUT BTU/h Low Fire	OVERALL UNIT LENGTH	UNIT WEIGHT	TYP. OR RCMD. MOUNTING HEIGHTS <sup>1</sup>	COVERAGE AREA (LxW)
	<b>DST-60N</b>		Natural Gas	60,000	40,000	119"	150 lbs.	8 to 13 ft.	20' x 12'
	<b>DST-60P</b>		Propane	60,000	50,000	119"	150 lbs.	8 to 13 ft.	20' x 12'
	<b>DST-80N</b>		Natural Gas	80,000	50,000	119"	150 lbs.	9 to 14 ft.	20' x 12'

<sup>1</sup> 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



- 60 MBH Units are CSA Design Certified for commercial/industrial indoor and outdoor use, and residential outdoor use only.
- 80 MBH Units are CSA Design Certified for commercial/industrial outdoor use only.
- 3/4" x 3/4" modular, decorative grille with large openings for enhanced radiant output.
- The DST-60 is available for natural or propane gas. The DST-80 is only available for natural gas.
- Two heaters in one (high/low fire) allows application flexibility.
- 26 linear feet of radiant tube provides increased efficiency and heat output.
- Highly polished internal reflector for increased efficiency.
- Unified component panel with easy access decreases heater service time.
- Self-diagnostic LED, microprocessor based circuitry.

#### DETROIT RADIANT PRODUCTS CO.



21400 Hoover Rd.  
Warren, MI 48089-3162

Phone: (586) 756-0950  
Fax: (586) 756-2626  
Email: sales@irpatio.com  
Website: www.irpatio.com

# DST SPECIFICATIONS



## APPROVALS

- ANSI Z83.20-2016 and CSA 2.34-2016 (60,000 BTU/h Models Only)
- ANSI Z86.26-2014 and CSA 2.37-2014 (All Models)
- Indoor Approval (60,000 BTU/h Models Only)
- Residentially Outdoor Certified to CSA No. 7-89

## BURNER CONTROL BOX

- Easy access unified component panel
- Totally enclosed components
- Operational indicator lights

## GAS CONNECTION

- 1/2" x 24" 304 stainless steel flexible gas connector included

## GAS SUPPLY (Inches W.C.)

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

## POWER SUPPLY

- 120 VAC, 60 Hz GRD, 1 Ph., 3-wire
- 60 in. grounded powercord
- Ignition current - 5.2 amp
- Running current - 0.7 amps

## CONTROLS

- 24 VAC thermostatic control
- Pre- and post-purge controls

## COMBUSTION AIR INLET & VENTING

- Preset 4 in. combustion air inlet collar
- Sidewall or roof venting (60 MBH Models Only)

## RADIANT TUBES

- 26 linear feet of radiant tube

## REFLECTOR

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

## LIMITED WARRANTY

- 3 years - Internal components
- 5 years - Radiant tubes
- 10 years - Burner

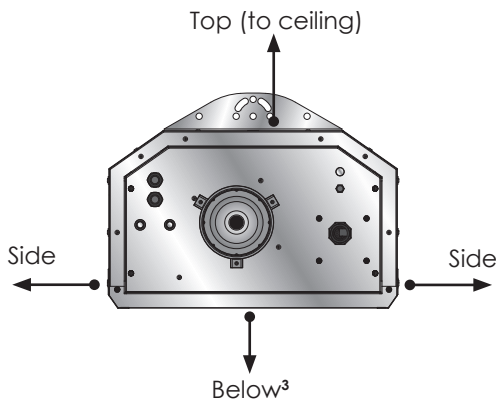
# DST CLEARANCES TO COMBUSTIBLES (IN INCHES)

MODEL NO.	MOUNTING ANGLE <sup>2</sup>	TOP	SIDE		ENDS	BELOW <sup>3</sup>
			FRONT	BEHIND		
DST-60	0°	12	19	19	16	66
	30°	14	45	24	16	45
DST-80	0°	15	26	26	16	77
	30°	16	74	31	16	74

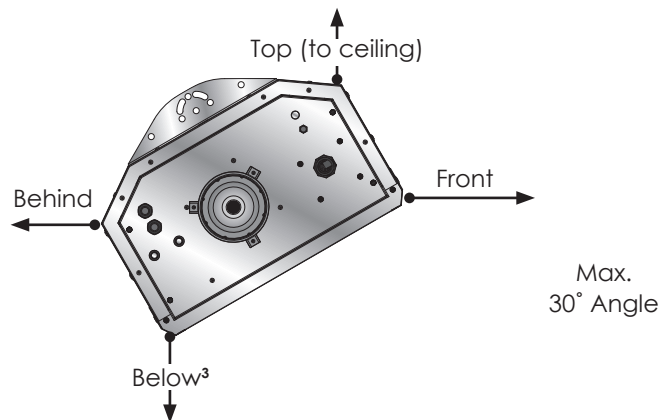
<sup>2</sup> Heaters mounted on an angle between 0° to 30° must maintain clearances posted for 0° or 30°; whichever is greater.

<sup>3</sup> The minimum mounting height is 79" above floor level.

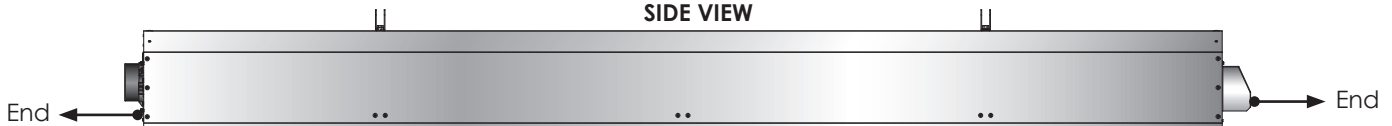
END VIEW - 0° MOUNTING ANGLE



END VIEW - 30° MOUNTING ANGLE

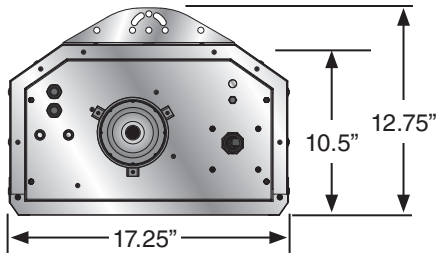
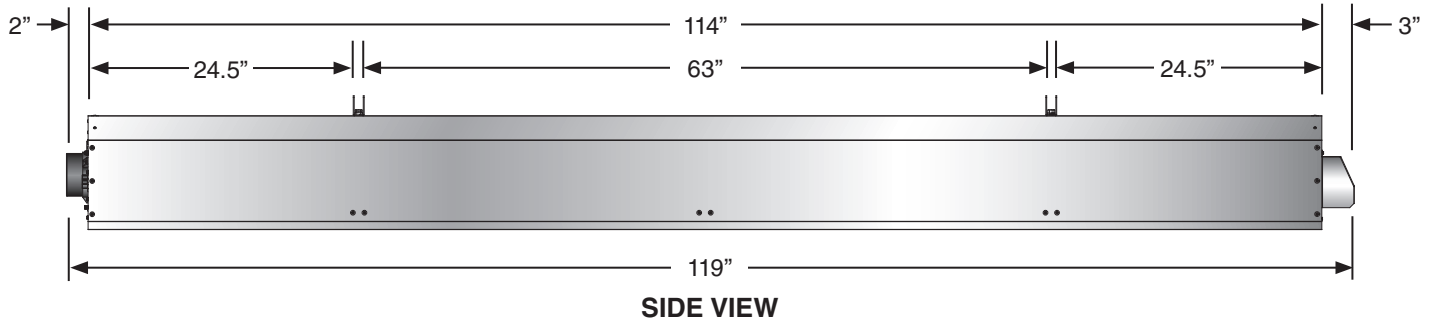


SIDE VIEW



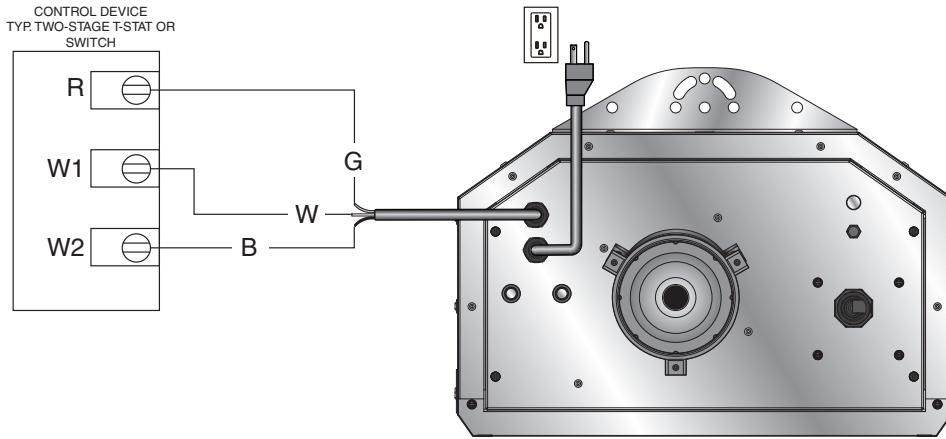
# DST SERIES FIELD DATA

## DIMENSIONAL DATA



## FIELD WIRING DIAGRAMS

Controlling a heater with a single control device.



## OPTIONAL ACCESSORIES

QTY.	PART NO.	DESCRIPTION	NOTES
	<b>THGH10</b>	10' Sway bracing gripple cables	10 foot length of looped cable with a locking fastener per assembly.
	<b>THGH15-SS</b>	15' Stainless steel sway bracing gripple cables	15 foot length of looped cable with a locking fastener per assembly.
	<b>4000-01V</b>	40 VA external transformer	40 VA transformer 120-25 VAC. Mounted on a 4" x 4" base plate.
	<b>ERK</b>	External relay kit	Used for multiple heaters controlled by one thermostat. One required per heater.
	<b>PLQ</b>	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. 16 ga. Titanium stabilized aluminized steel 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. 16 ga. 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 430 stainless steel 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 8 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 Dimpled Baffle-MAX tubes 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 re-cycle 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. The heater's air flow control system shall provide a 45 second pre-purge prior to initiating burner operation and a 120 second post-purge upon completion, effectively removing all products of combustion from heat exchanger and/or radiant tubes.
  6. No condensation shall form as a result of combustion in the combustion chamber or radiant tubes while at operating temperatures.
  7. Thermostat/control device shall be two-stage operating on 24 VAC.
- U. Venting: shall be per manufacturer approval and specifications (60 MBH Only).
- V. Thermostat/Control Devices and wiring are specified in Division 23 Section "Instrumentation and Control for HVAC."