

# DSRL SERIES TUBE HEATERS

## SUBMITTAL DATA – TWO STAGE, LOW INTENSITY GAS-FIRED INFRARED PATIO 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 INSTALLED UNIT LENGTH	STANDARD WEIGHT	TYP. OR RCMD. MOUNTING HEIGHTS <sup>1</sup>	COVERAGE AREA (LxW)
	<b>DSRL-30-65</b>		Nat. or Prop.	65,000	50,000	16' - 4"	170 lbs.	9' to 16'	26' x 12'
	<b>DSRL-30-80</b>		Nat. or Prop.	80,000	52,000	16' - 4"	170 lbs.	9' to 16'	26' x 12'
	<b>DSRL-30-100</b>		Nat. or Prop.	100,000	65,000	16' - 4"	170 lbs.	9' to 16'	26' x 12'

<sup>1</sup> Typical or recommended mounting heights are provided as a guideline. Actual conditions may dictate variations from this data.

### DSRL SERIES FEATURES



- CSA Design Certified for commercial, industrial, and residential **outdoor use** only
- Patented two stage operation
- Pre- and post-purge controls
- Self-diagnostic LED, microprocessor based circuitry
- Reliable hot surface ignition
- 24 VAC controlled
- Decorative housing with modular grille

**WARNING**

**NOT FOR INDOOR USE.**

Do not use this heater in the home, sleeping quarters, attached garages, or other non-approved applications.

#### DETROIT RADIANT PRODUCTS CO.



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# DSRL SERIES SPECIFICATIONS



## APPROVALS

- CSA Certified to ANSI Z83.26/CSA 2.37
- Unvented outdoor approval only

## BURNER CONTROL BOX

- Sight glass for burner inspection
- Totally enclosed components
- Silicone sealed, black enameled steel control housing
- Operational indicator lights

## GAS CONNECTION

- 7/8 in. flare connecting to 1/2" NPT adapter to 1/2 in. x 24 in. (304) SS flex connector provided

## 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 power cord
- Ignition Current - 4.8 amps
- Running Current - 1.1 amps

## CONTROLS

- 24 VAC thermostatic control
- Two stage gas valve
- Silicon carbide hot surface ignitor
- Safety pressure switch
- Pre- and post-purge controls
- Flame rod sensing
- Self-diagnostic - LED "soft lockout"

## REFLECTOR

- .040 polished aluminum

## COMBUSTION & RADIANT TUBES

- 16 ga. 4" O.D. aluminized coated steel combustion chamber and radiant emitter tubes
- All tubes coated with high temperature, corrosion resistant black coating, .95 emissivity
- Slip-fit swaged tube connection

## LIMITED WARRANTY

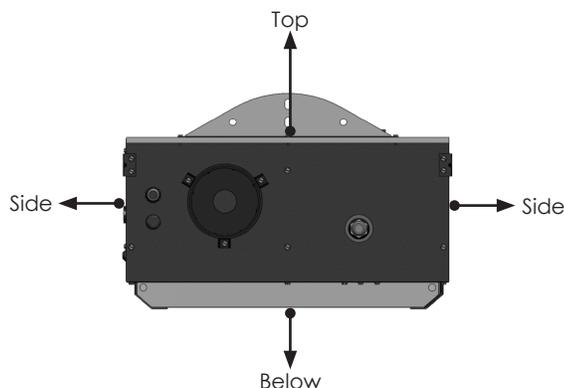
- 3 years - Burner box components
- 5 years - Combustion and radiant tubes
- 10 years - Burner

# DSRL SERIES CLEARANCES TO COMBUSTIBLES (IN INCHES)

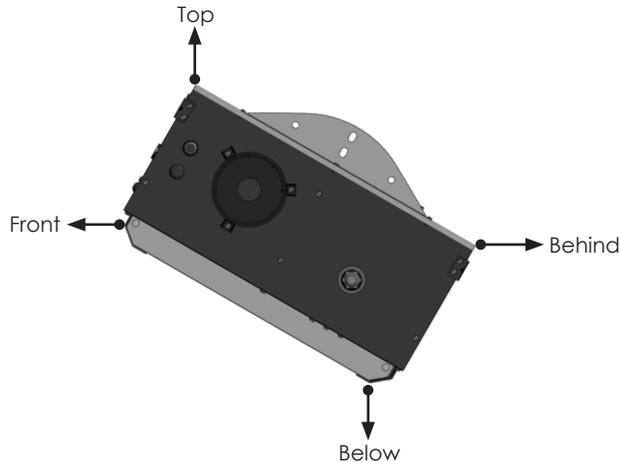
MODEL NO.	MOUNTING ANGLE <sup>2</sup>	SIDE		TOP	BELOW	END
		FRONT	BEHIND			
DSRL-30-65 [N,P]	0°	25	25	6	60	12
	30°	36	10	9	47	12
DSRL-30-80 [N,P]	0°	25	25	6	60	12
	30°	36	10	9	47	12
DSRL-30-100 [N,P]	0°	25	25	6	77	12
	30°	45	10	9	64	12

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

END VIEW - 0° Mounting Angle



END VIEW - 30° Mounting Angle



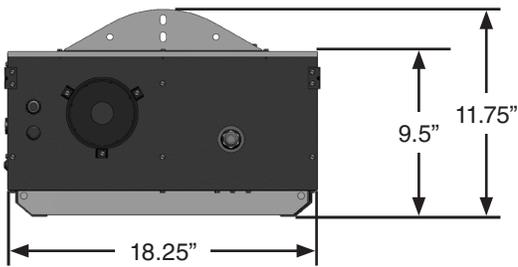
SIDE VIEW



# DSRL SERIES FIELD DATA

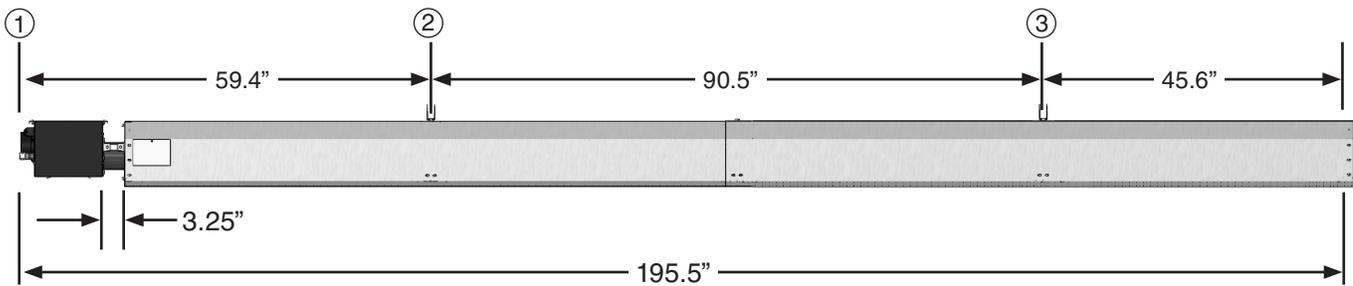
## DIMENSIONAL DATA

### END VIEW



- ① Hanging Point 1
- ② Hanging Point 2
- ③ Hanging Point 3

### SIDE VIEW

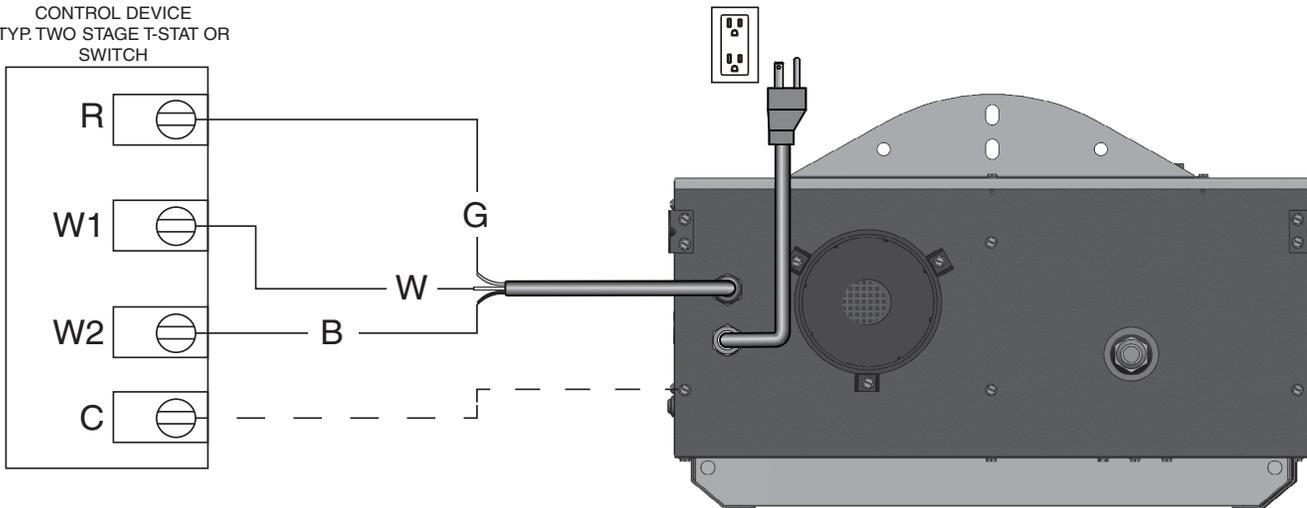


## FIELD WIRING DIAGRAMS

### Controlling a Single Heater with a Single Control Device

Controlling multiple heaters with a single control device requires one ERK per heater. Refer to pg. 27 of the installation manual.

CONTROL DEVICE  
TYP. TWO STAGE T-STAT OR  
SWITCH



## OPTIONAL ACCESSORIES

QTY.	PART NO.	DESCRIPTION	NOTES
	<b>DS-BKT</b>	Mounting Bracket Assembly	Set of 3 mounting brackets with SMB. Expands from 20.6" to 45.6".
	<b>4000-01V</b>	40 VA Transformer	120-24 VAC primary and secondary (only required when common venting). Mounted on 4x4 base plate.
	<b>ERK</b>	External Relay Kit	One ERK is required per heater when controlling multiple heaters on a single control device.
	<b>TH-DSTS1</b>	Single Zone Controller	Single zone, two stage, low voltage controller with control knob.
	<b>TH-DSTS2</b>	Dual Zone Controller	Two zone, two stage, low voltage controller with control knob.

# DSRL SERIES WRITTEN SPECIFICATIONS

## PRODUCTS

1. TUBULAR INFRARED PATIO HEATERS
  - A. Basis-of-design product: Subject to compliance with requirements, provide Detroit Radiant Products Company; **Re-Verber-Ray® DSRL 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 23% between the low and nominal rated input modes.
    1. 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.
  - D. Heater shall contain a minimum of 28' of radiant pipe with cast "U" for maximum radiant output.
  - E. Heater must be outdoor approved to ANSI Z83.26/CSA 2.37.
  - F. Combustion chamber: Shall be 16 ga. aluminized steel, finished with a high emissivity rated, corrosion-resistant, black coating with an emissivity level documented at .92 or higher.
  - G. Radiant emitter tube: Shall be 16 ga. aluminized steel finished with a high emissivity rated, corrosion-resistant, black coating with an emissivity level documented at .92 or higher.
  - H. Heater U configuration uses one cast "U" bend.
  - I. 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 shall not be allowed.
  - J. 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.
  - K. Burner: Stainless-steel venturi burner. The 16" starter tube is made of aluminized steel.
  - L. 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 and is held by a screw. A butted tube connection system shall not be permitted.
  - M. 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.
  - N. Reflectors: Shall be minimum .040 brushed aluminum with a multi-faceted design which includes reflector end caps. Reflector shall have a minimum of 7 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.
  - O. Control box: Heater's exterior control chassis shall be constructed of corrosion resistant enameled steel.
    1. The heater's control compartment shall be easily serviceable by removing one (1) panel.
  - P. 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.
  - Q. Heater shall be supplied with a stainless steel flexible gas connector.
  - R. 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 with an LED indicator light, and that shall 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. Heater control assembly shall include three indicator lights that define the unit's operating input ranges. One indicator shall validate air flow. Two indicator lights shall indicate low and high firing stages.
    6. The heater's air flow control system shall provide a 45 second pre-purge prior to initiating burner operation and a post-purge upon completion, 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.
  - S. Control: Devices and wiring are specified in Division 23 Section "Instrumentation and Control for HVAC."
    1. Custom designed low voltage controllers with illuminated switches to be utilized.
    2. Control Transformer: Internally mounted.
  - T. 1/2" x 1/2" x 1/2" mill finish modular aluminum egg crate with decorative end caps to be housed by decorative shell.