

# SV SERIES TUBE HEATERS

## SUBMITTAL DATA – LOW INTENSITY GAS-FIRED INFRARED TUBE HEATER UNITARY VACUUM SYSTEM & ACCESSORIES

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

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

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

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

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

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

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

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

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

QTY.	MODEL #	TAG	INDICATE GAS TYPE	BTU/h INPUT	STRAIGHT LENGTH	U-TUBE LENGTH	STANDARD WEIGHT	TYP. OR RCMD. MOUNTING HEIGHTS <sup>2</sup>	MAX VENT LENGTHS	FIELD USE ONLY	
										"TYPE" TUBE PKG #1	"TYPE" TUBE PKG #2
	SV-20-50		Nat or Prop	50,000	22'- 7"	13'- 0"	140 lbs.	9' to 14'	25'	20-4 ALUM	N/A
	SV-20-60		Nat or Prop	60,000	22'- 7"	13'- 0"	140 lbs.	10' to 15'	25'	20-4 ALUM	N/A
	SV-20-75		Nat or Prop	75,000	22'- 7"	13'- 0"	140 lbs.	11' to 18'	30'	20-4 ALUM	N/A
	SV-30-50		Nat or Prop	50,000	32'- 3"	17'- 8" <sup>1</sup>	180 lbs.	10' to 15'	20'	30-4 ALUM	N/A
	SV-30-60		Nat or Prop	60,000	32'- 3"	17'- 8" <sup>1</sup>	180 lbs.	11' to 18'	20'	30-4 ALUM	N/A
	SV-30-75		Nat or Prop	75,000	32'- 3"	17'- 8" <sup>1</sup>	180 lbs.	12' to 20'	25'	30-4 ALUM	N/A
	SV-30-100		Nat or Prop	100,000	32'- 3"	17'- 8" <sup>1</sup>	180 lbs.	13' to 23'	30'	30-4 ALUM	N/A
	SV-30-125		Nat or Prop	125,000	32'- 3"	17'- 8" <sup>1</sup>	180 lbs.	14' to 25'	35'	30-4 ALUM	N/A
	SV-40-50		Nat or Prop	50,000	41'- 11"	22'- 8"	210 lbs.	11' to 18'	20'	40-4 ALUM	N/A
	SV-40-60		Nat or Prop	60,000	41'- 11"	22'- 8"	210 lbs.	11' to 18'	20'	40-4 ALUM	N/A
	SV-40-75		Nat or Prop	75,000	41'- 11"	22'- 8"	210 lbs.	12' to 20'	25'	40-4 ALUM	N/A
	SV-40-100		Nat or Prop	100,000	41'- 11"	22'- 8"	210 lbs.	13' to 23'	25'	40-4 ALUM	N/A
	SV-40-125		Nat or Prop	125,000	41'- 11"	22'- 8"	210 lbs.	14' to 25'	30'	40-4 ALUM	N/A
	SV-40-150		Nat or Prop	150,000	41'- 11"	22'- 8"	210 lbs.	15' to 27'	35'	40-4 TITAN	N/A
	SV-40-175		Nat or Prop	175,000	41'- 11"	22'- 8"	210 lbs.	16' to 30'	35'	40-4 TITAN	N/A
	SV-50-100		Nat or Prop	100,000	51'- 7"	27'- 4" <sup>1</sup>	255 lbs.	15' to 27'	25'	40-4 ALUM	10-4 ALUM
	SV-50-125		Nat or Prop	125,000	51'- 7"	27'- 4" <sup>1</sup>	255 lbs.	15' to 27'	30'	40-4 ALUM	10-4 ALUM
	SV-50-150		Nat or Prop	150,000	51'- 7"	27'- 4" <sup>1</sup>	255 lbs.	16' to 30'	30'	40-4 TITAN	10-4 ALUM
	SV-50-175		Nat or Prop	175,000	51'- 7"	27'- 4" <sup>1</sup>	255 lbs.	17' to 35'	35'	40-4 TITAN	10-4 ALUM
	SV-50-200		Nat or Prop	200,000	51'- 7"	27'- 4" <sup>1</sup>	255 lbs.	18' to 40'	35'	40-4 TITAN	10-4 ALUM
	SV-60-150		Nat or Prop	150,000	61'- 3"	32'- 4"	285 lbs.	17' to 35'	25'	40-4 TITAN	20-4 ALUM
	SV-60-175		Nat or Prop	175,000	61'- 3"	32'- 4"	285 lbs.	17' to 35'	30'	40-4 TITAN	20-4 ALUM
	SV-60-200		Nat or Prop	200,000	61'- 3"	32'- 4"	285 lbs.	18' to 40'	30'	40-4 TITAN	20-4 ALUM
	SV-70-175		Nat or Prop	175,000	70'- 11"	37'- 0" <sup>1</sup>	320 lbs.	19' to 42'	25'	40-4 TITAN	30-4 ALUM
	SV-70-200		Nat or Prop	200,000	70'- 11"	37'- 0" <sup>1</sup>	320 lbs.	19' to 42'	30'	40-4 TITAN	30-4 ALUM
	SV-80-200		Nat or Prop	200,000	80'- 7"	42'- 0"	350 lbs.	20' to 45'	25'	40-4 TITAN	40-4 ALUM

<sup>1</sup> Model requires 5EA-SUB accessory package when installing heater in a U-shaped configuration.

<sup>2</sup> Typical or recommended mounting heights are provided as a guideline. Actual conditions may dictate variations from this data.

### DETROIT RADIANT PRODUCTS CO.

### VISIT OUR WEBSITE FOR:



21400 Hoover Rd.  
Warren, MI 48089-3162

Phone: (586) 756-0950  
Toll Free: (800) 222-1100  
Fax: (586) 756-2626  
Email: sales@drp-co.com  
Website: www.reverberray.com

- Product Specs
- Parts Support
- Dealer Locator
- Applications
- CAD/Revit Library
- Design Guidelines
- Theory of Infrared
- and More!

# SV SPECIFICATIONS

## APPROVALS

- CSA Design Certified, IAS.
- Commercial/Industrial Approval.

## GAS CONNECTION

- 7/8 in. flare M NPT Connection to 1/2 in. x 24 in. (304) SS flexible gas connector.
- 1/2 in. F NPT ball valve with inlet tap.

## COMBUSTION AIR INLET & VENTING

- Preset 4 in. combustion air inlet collar.
- Sidewall or roof venting - reference front cover for allowable vent lengths.

## POWER SUPPLY

- 120 VAC, 60 Hz GRD, 1 Ph., 3-wire to appliance exhauster.
- Exhauster generates 24 VAC out to appliance burner.
- Ignition current - 3.0 amps.
- Running current - 2.0 amps.

## EXHAUSTER PUMP ASSEMBLY

- 2.2 amps running.
- 1/15 HP.

## CONTROLS

- 120 VAC standard thermostat control.
- 24 VAC control relay option available.
- 100% safety shut-off.
- Self-diagnostic circuit board.
- Air proving safety switch.
- Silicone carbide hot surface ignition.
- Flame rod sensing.

## GAS SUPPLY (Inches W.C.)

- Manifold pressure: Nat 3.5; Prop 10.0
- Min. Inlet pressure: Nat 5.5; Prop 11.0
- Max. Inlet pressure: Nat 14.0; Prop 14.0

## INDICATOR LIGHTS

- Light #1 - Indicates pressure switch operation.
- Light #2 - Indicates gas valve power.

## BURNER CONTROL BOX

- Sight glass for burner inspection.
- Totally enclosed components.
- Coated enameled steel.
- Operational indicator lights.

## COMBUSTION & RADIANT TUBES

- 16 ga. 4" O.D. coated aluminized steel radiant tubes, with .95 emissive, corrosion resistant black coating.
- Titanium alloy treated steel combustion chamber (150,000 to 200,000 models).
- Slip-fit swaged tube connection.
- Turbulator baffle.

## REFLECTOR

- Highly polished aluminum.
- End caps.
- Continuous overlap design.
- Reflector tension springs.
- One center support per reflector.

## LIMITED WARRANTY\*

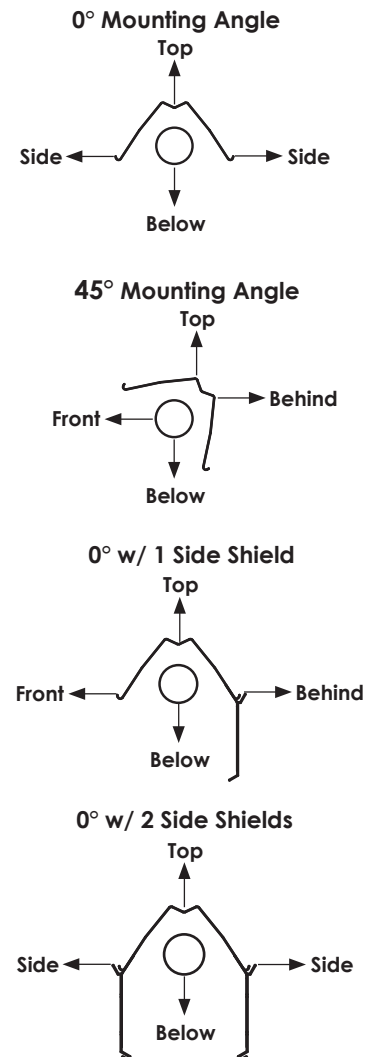
- 3 years - Burner box & exhauster components.
- 5 years - Combustion and radiant tubes.
- 10 years - Burner.

**NOTE:** Detroit Radiant Products Company offers a full, non-prorated limited warranty. \*Extended warranty available.

# SV CLEARANCES TO COMBUSTIBLES (IN INCHES)

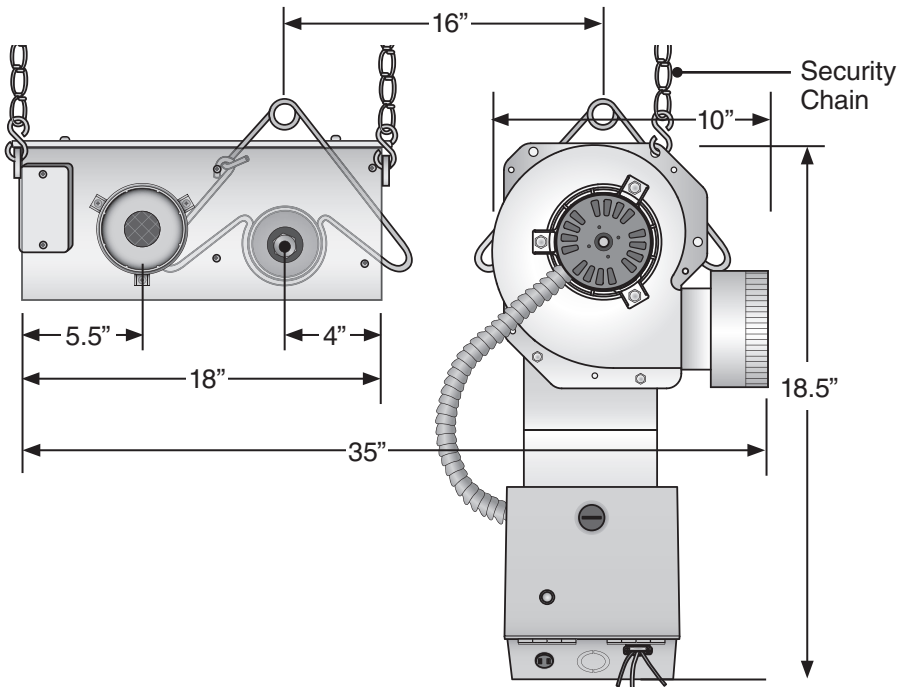
MODEL NO.	MOUNTING ANGLE <sup>3</sup>	SIDE		TOP	BELOW
		FRONT	BEHIND		
SV (20, 30, 40) - 50, 60 [N,P]	0°	9	9	6	47
	45°	39	8	10	47
W/1 side shield	0°	29	8	6	47
W/2 side shields	0°	9	9	6	47
20 ft. from burner	0°	7	7	6	30
SV (20, 30, 40) - 75 [N,P]	0°	9	9	6	60
	45°	39	8	10	60
W/1 side shield	0°	29	8	6	60
W/2 side shields	0°	9	9	6	60
20 ft. from burner	0°	7	7	6	30
SV (30, 40, 50) - 100 [N,P]	0°	14	14	6	66
	45°	39	8	10	66
W/1 side shield	0°	29	8	6	66
W/2 side shields	0°	16	16	6	66
20 ft. from burner	0°	7	7	6	30
SV (30, 40, 50) - 125 [N,P]	0°	20	20	6	76
	45°	58	8	10	76
W/1 side shield	0°	42	8	6	76
W/2 side shields	0°	20	20	6	76
20 ft. from burner	0°	7	7	6	30
SV (40, 50, 60) - 150 [N,P]	0°	24	24	6	81
	45°	58	8	10	81
W/1 side shield	0°	42	8	6	81
W/2 side shields	0°	23	23	6	81
20 ft. from burner	0°	11	11	6	44
SV (40, 50, 60, 70) - 175 [N,P]	0°	34	34	6	92
	45°	63	8	10	92
W/1 side shield	0°	50	8	6	92
W/2 side shields	0°	30	30	6	92
20 ft. from burner	0°	11	11	6	44
SV (50, 60, 70, 80) - 200 [N,P]	0°	41	41	6	94
	45°	63	8	10	94
W/1 side shield	0°	54	8	6	94
W/2 side shields	0°	30	30	6	94
20 ft. from burner	0°	11	11	6	44

<sup>3</sup> Heaters mounted on an angle between 0° and 45° must maintain clearances posted for 0° or 45°; whichever is greater.

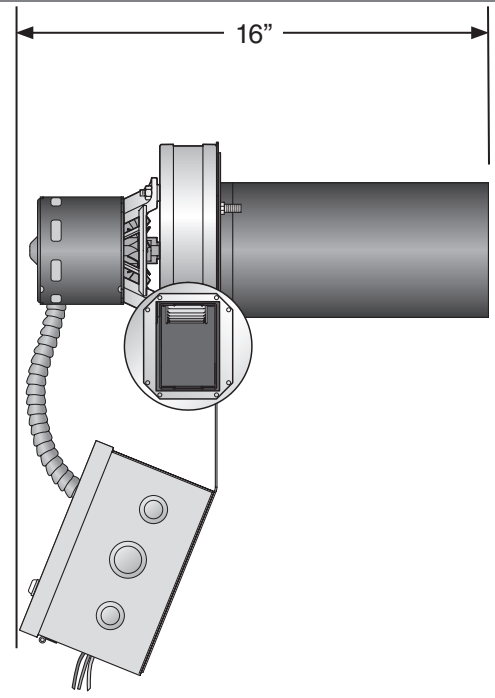


Read and understand the installation, operation and maintenance manual prior to installing or servicing this unit.

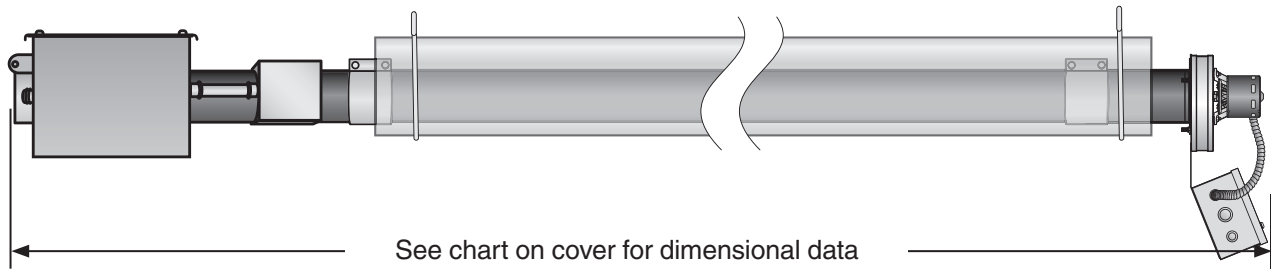
# SV BURNER CONTROL BOX AND EXHAUSTER ASSEMBLY DETAILS



**MOUNTING DETAIL END VIEW** (Shown in a U-shaped configuration)



**EXHAUSTER ASSEMBLY SIDE VIEW**



See chart on cover for dimensional data

## OPTIONAL ACCESSORIES

QTY.	PART #	DESCRIPTION	NOTES
	<b>10EA</b>	10' X 4" Tube & Reflector Extension	Optional 10 ft. extension package. Max. one per unit.
	<b>4-DSK</b>	4" Sidewall Vent Kit	Required for all single sidewall vents. No roof venting.
	<b>6-DSK</b>	6" Sidewall Vent Kit	Required for all common sidewall vents. No roof venting.
	<b>BK</b>	Angle Mounting Bracket 15-30-45 Deg.	Rotates reflector to preset mounting angles.
	<b>E6</b>	90 Degree, 4" Radiant Elbow	Used for making a L-shaped heater. Maximum of two per unit.
	<b>PG</b>	Protective Guard	Protects heat exchanger from contact or objects. Each 5 ft. in length.
	<b>PLQ</b>	Warning Plaque	Hung below heater, restates the clearance to combustibles warning.
	<b>REP</b>	Reflector & Elbow Package	Reflector and accessories used to configure heater in a 'L' shape.
	<b>RTVP-4</b>	4" Rooftop Vent Package	Used to single vent vertically through the roof.
	<b>RTVP-6</b>	6" Rooftop Vent Package	Used to common vent vertically through the roof.
	<b>RUP</b>	Reflector & 'U' Bend Package	Reflector and accessories used to configure heater in a 'U' shape.
	<b>SMB</b>	Single Mount Bracket	Provides units with 'U' bend uniform mounting points. One per 10 ft.
	<b>SSE</b>	Side Shield Extension	Reflector side guard used to lower side clearances. Each 5 ft. in length.
	<b>TF1B</b>	180 Degree, 4" Radiant 'U' Bend	Used for making a U-shaped heater. Maximum of one per unit.
	<b>THCS</b>	Tube Heater Chain Set	5 ft. chain set with two S-hooks used for hanging heater.
	<b>TR60</b>	5' x 4" Tube & Reflector Extension	Optional 5 ft. extension package. Maximum of two per unit.
	<b>WIV-4</b>	4" Combustion Air Intake - Sidewall Cap	Used to duct fresh (cold) air 0-30 ft. to a heater. Sidewall only.
	<b>WVE-GALV</b>	4" Unvented Exhaust Termination Cap	Required on all units when operating unvented.
	<b>Y</b>	4" x 6" x 4" Aluminized Common Vent	Used for joining two heaters on one vent. Same thermostat required.
	<b>YSM</b>	4" x 6" x 4" Galvanized Common Vent	Used for joining two heaters on one vent. Same thermostat required.

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

# SV SERIES WRITTEN SPECIFICATIONS

## PRODUCTS

### 1. DRAFT-INDUCED HEATERS

- A. Basis-of-design product: Subject to compliance with requirements, provide Detroit Radiant Products Company; **Re-Verber-Ray® SV Series** Negative Pressure Unitary Burner Vacuum System.
- 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.
  - 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.
  - 2. The heater's air flow control system shall provide a 7 second pre-purge prior to initiating burner operation.
- D. Combustion chamber: Shall be 4 inch O.D. 16ga. Titanium stabilized aluminized steel to allow for the operating temperature to exceed the 1030°F as set forth in the ANSI Z83.20 Standard, 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. Burner type: Units shall operate under a negative pressure with exhaust gases pulled through the exchanger pipe to a common exhaust pump. Each burner shall receive its combustion air independently. Burners that have exhaust gases from upstream burners passing over them shall not be permitted. Burners shall operate at a minimum of 3.5" W.C. manifold pressure to achieve proper air-gas mixing. Burners that require air filters shall not be permitted.
- G. 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.
- H. Tube connections: The heater's combustion chamber and radiant emitter tube shall incorporate a 4 inch slip-fit, interlocking connection in which the upstream tube slides into the next tube and is held by a bolted clamp. A butted tube connection system shall not be permitted.
- I. Exhauster Pumps:
  - 1. Heater's power exhauster shall have a stainless steel shaft and sealed bearing motor.
  - 2. Power supplied to each exhauster assembly shall be 120 VAC, 60Hz. the power output from the exhauster assembly to the burner control box assembly shall be 24V-28V.
- J. Ignition system: Hot surface silicon carbide composition. Igniter shall be readily accessible and serviceable without having to remove the burner. Spark ignition systems shall not be permitted.
- K. 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 7 sheet metal bends in its fabrication to optimize downward radiation. Reflectors shall be rotatable from 0 to 45 degrees when required. The heater's reflector hanging system shall be designed to permit expansion while minimizing noise and/or rattles.
- L. Control box: 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.
- M. 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.
- N. Heater shall be supplied with a stainless steel flexible gas connector.
- O. System Operation and Safety Controls:
  - 1. Each burner assembly 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. A single differential pressure switch at the exhauster assembly shall not be permitted.
  - 2. The system's air flow control system shall provide a 7-second pre-purge prior to initiating burner operation.
  - 3. The heater shall incorporate a self-diagnostic ignition module, and recycle the heater after an inadvertent shutdown.
  - 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. Heater control assembly shall include two indicator lights that define the units operating input ranges. One indicator shall validate air flow. One indicator light shall indicate gas flow.
- P. Venting: Shall be per manufacturer approval and specifications.
- Q. 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 deg F (10 to 32 deg C) operating range.