

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 ²	MAX VENT LENGTHS
	SV-20-50		Nat. or Prop.	50,000	22'- 7"	13'- 0"	140 lbs.	9' to 14'	25'
	SV-20-60		Nat. or Prop.	60,000	22'- 7"	13'- 0"	140 lbs.	10' to 15'	25'
	SV-20-75		Nat. or Prop.	75,000	22'- 7"	13'- 0"	140 lbs.	11' to 18'	30'
	SV-30-50		Nat. or Prop.	50,000	32'- 3"	17'- 8" ¹	180 lbs.	10' to 15'	20'
	SV-30-60		Nat. or Prop.	60,000	32'- 3"	17'- 8" ¹	180 lbs.	11' to 18'	20'
	SV-30-75		Nat. or Prop.	75,000	32'- 3"	17'- 8" ¹	180 lbs.	12' to 20'	25'
	SV-30-100		Nat. or Prop.	100,000	32'- 3"	17'- 8" ¹	180 lbs.	13' to 23'	30'
	SV-30-125		Nat. or Prop.	125,000	32'- 3"	17'- 8" ¹	180 lbs.	14' to 25'	35'
	SV-40-50		Nat. or Prop.	50,000	41'- 11"	22'- 8"	210 lbs.	11' to 18'	20'
	SV-40-60		Nat. or Prop.	60,000	41'- 11"	22'- 8"	210 lbs.	11' to 18'	20'
	SV-40-75		Nat. or Prop.	75,000	41'- 11"	22'- 8"	210 lbs.	12' to 20'	25'
	SV-40-100		Nat. or Prop.	100,000	41'- 11"	22'- 8"	210 lbs.	13' to 23'	25'
	SV-40-125		Nat. or Prop.	125,000	41'- 11"	22'- 8"	210 lbs.	14' to 25'	30'
	SV-40-150		Nat. or Prop.	150,000	41'- 11"	22'- 8"	210 lbs.	15' to 27'	35'
	SV-40-175		Nat. or Prop.	175,000	41'- 11"	22'- 8"	210 lbs.	16' to 30'	35'
	SV-50-100		Nat. or Prop.	100,000	51'- 7"	27'- 4" ¹	255 lbs.	15' to 27'	25'
	SV-50-125		Nat. or Prop.	125,000	51'- 7"	27'- 4" ¹	255 lbs.	15' to 27'	30'
	SV-50-150		Nat. or Prop.	150,000	51'- 7"	27'- 4" ¹	255 lbs.	16' to 30'	30'
	SV-50-175		Nat. or Prop.	175,000	51'- 7"	27'- 4" ¹	255 lbs.	17' to 35'	35'
	SV-50-200		Nat. or Prop.	200,000	51'- 7"	27'- 4" ¹	255 lbs.	18' to 40'	35'
	SV-60-125		Nat. or Prop.	125,000	61'- 3"	32'- 4"	285 lbs.	16' to 32'	25'
	SV-60-150		Nat. or Prop.	150,000	61'- 3"	32'- 4"	285 lbs.	17' to 35'	25'
	SV-60-175		Nat. or Prop.	175,000	61'- 3"	32'- 4"	285 lbs.	17' to 35'	30'
	SV-60-200		Nat. or Prop.	200,000	61'- 3"	32'- 4"	285 lbs.	18' to 40'	30'
	SV-70-175		Nat. or Prop.	175,000	70'- 11"	37'- 0" ¹	320 lbs.	19' to 42'	25'
	SV-70-200		Nat. or Prop.	200,000	70'- 11"	37'- 0" ¹	320 lbs.	19' to 42'	30'
	SV-80-200		Nat. or Prop.	200,000	80'- 7"	42'- 0"	350 lbs.	20' to 45'	25'

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

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

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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*

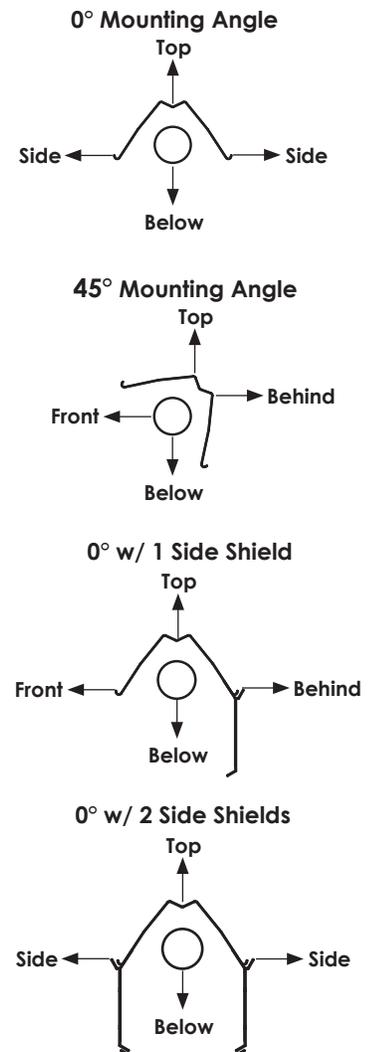
- 3 years - Burner box & exhauster components
- 5 years - Combustion and radiant tubes
- 10 years - Burner

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

SV CLEARANCES TO COMBUSTIBLES (IN INCHES)

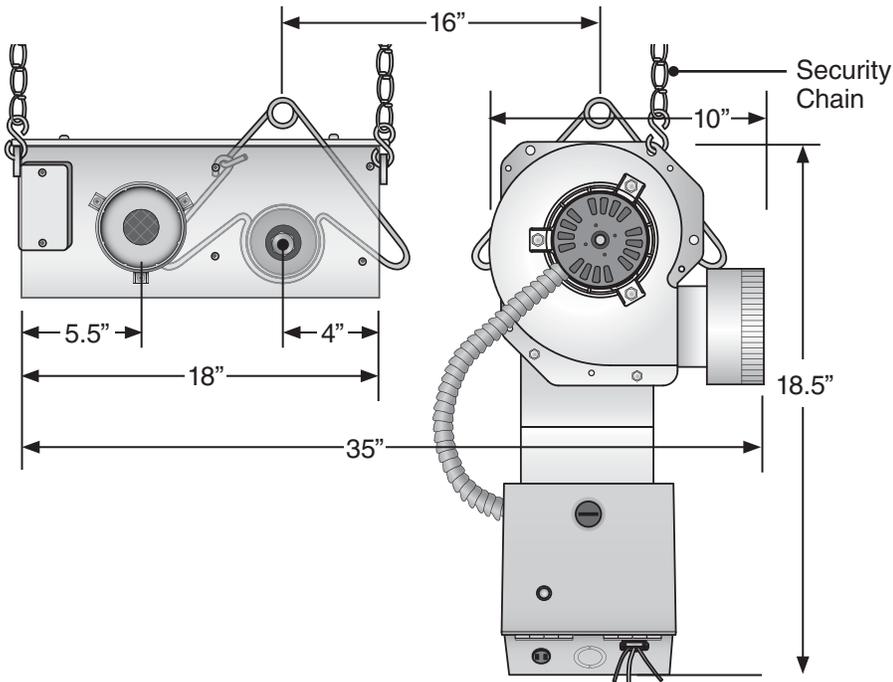
MODEL NO.	MOUNTING ANGLE ³	SIDE			
		FRONT	BEHIND	TOP	BELOW
SV (20, 30, 40) - 50, 60 [N,P]	0°	9	9	6	47
	45°	39	8	10	47
W/1 side shield	0°	29	8	6	47
W/2 side shields	0°	9	9	6	47
20 ft. from burner	0°	7	7	6	30
SV (20, 30, 40) - 75 [N,P]	0°	9	9	6	60
	45°	39	8	10	60
W/1 side shield	0°	29	8	6	60
W/2 side 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, 60) - 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

³ Heaters mounted on an angle between 0° and 45° must maintain clearances posted for 0° or 45°, whichever is greater.

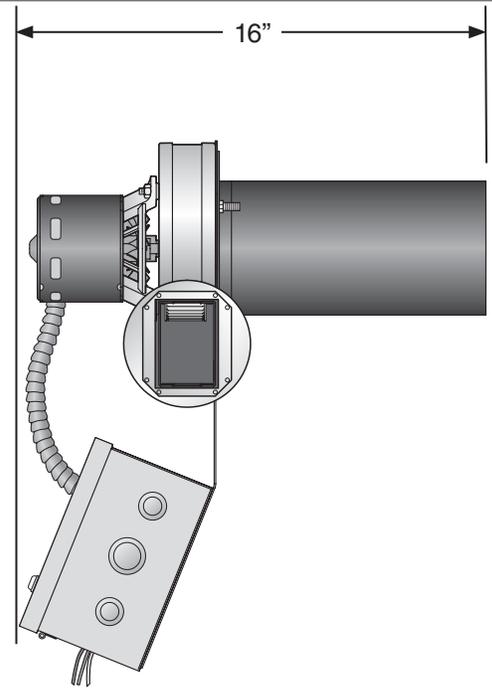


Read and understand the installation, operation, and maintenance manual prior to installing or servicing this unit.

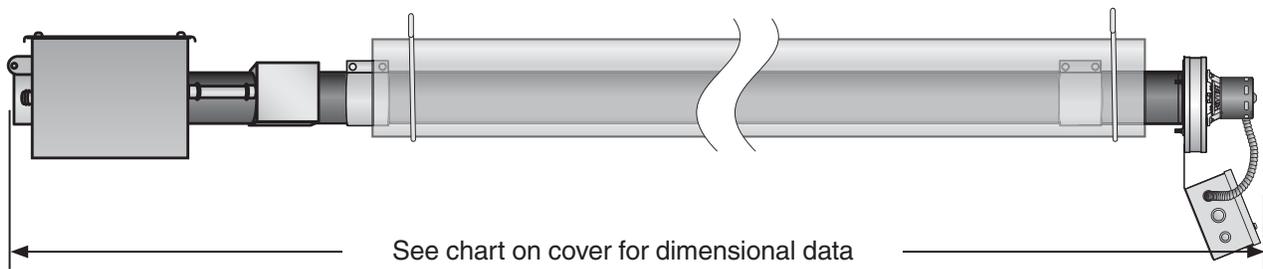
SV BURNER CONTROL BOX AND EXHAUSTER ASSEMBLY DETAILS



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
	10EA	10' X 4" Tube & Reflector Extension	Optional 10 ft. extension package. Max. one per unit.
	4-DSK	4" Sidewall Vent Kit	Required for all single sidewall vents. No roof venting.
	6-DSK	6" Sidewall Vent Kit	Required for all common sidewall vents. No roof venting.
	BK	Angle Mounting Bracket 15-30-45 Deg.	Rotates reflector to preset mounting angles.
	E6	90 Degree, 4" Radiant Elbow	Used for making a L-shaped heater. Maximum of two per unit.
	PG	Protective Guard	Protects heat exchanger from contact or objects. Each 5 ft. in length.
	PLQ	Warning Plaque	Hung below heater, restates the clearance to combustibles warning.
	REP	Reflector & Elbow Package	Reflector and accessories used to configure heater in a 'L' shape.
	RTVP-4	4" Rooftop Vent Package	Used to single vent vertically through the roof.
	RTVP-6	6" Rooftop Vent Package	Used to common vent vertically through the roof.
	RUP	Reflector & 'U' Bend Package	Reflector and accessories used to configure heater in a 'U' shape.
	SMB	Single Mount Bracket	Provides units with 'U' bend uniform mounting points. One per 10 ft.
	SSE	Side Shield Extension	Reflector side guard used to lower side clearances. Each 5 ft. in length.
	TF1B	180 Degree, 4" Radiant 'U' Bend	Used for making a U-shaped heater. Maximum of one per unit.
	THCS	Tube Heater Chain Set	5 ft. chain set with two S-hooks used for hanging heater.
	TR60	5' x 4" Tube & Reflector Extension	Optional 5 ft. extension package. Maximum of two per unit.
	WIV-4	4" Combustion Air Intake - Sidewall Cap	Used to duct fresh (cold) air 0-30 ft. to a heater. Sidewall only.
	WVE-GALV	4" Unvented Exhaust Termination Cap	Required on all units when operating unvented.
	Y	4" x 6" x 4" Aluminized Common Vent	Used for joining two heaters on one vent. Same thermostat required.
	YSM	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 Packing List (F/N: LPKTH) 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. 16 gauge, 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., 16 gauge, 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 exhauster 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, 60 Hz. The power output from the exhauster assembly to the burner control box assembly shall be 24 V-28 V.
- 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° 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 45° to 90°F (7° to 32°C) operating range.