

# SE2 SERIES TUBE HEATERS

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

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

DATE: \_\_\_\_\_

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

CONTRACTOR: \_\_\_\_\_

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

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

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

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

PROVINCE: \_\_\_\_\_ POSTAL CODE: \_\_\_\_\_

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

PROVINCE: \_\_\_\_\_ POSTAL CODE: \_\_\_\_\_

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

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

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

| QTY. | MODEL #    | GAS TYPE<br>(Circle One) | BTU/H<br>INPUT | STRAIGHT<br>LENGTH | U-TUBE<br>LENGTH | STANDARD<br>WEIGHT | RCMD.<br>MOUNTING<br>HEIGHTS** | FIELD USE ONLY         |                        |                        |
|------|------------|--------------------------|----------------|--------------------|------------------|--------------------|--------------------------------|------------------------|------------------------|------------------------|
|      |            |                          |                |                    |                  |                    |                                | "TYPE" TUBE<br>PKG #1^ | "TYPE" TUBE<br>PKG #2^ | "TYPE" TUBE<br>PKG #3^ |
|      | SE2-20-50  | N or LP                  | 50,000         | 21'-9"             | 13'-1"           | 120 lbs.           | 9' to 14'                      | 1AP,1CR,2R(Y)          | N/A                    | N/A                    |
|      | SE2-20-60  | N or LP                  | 60,000         | 21'-9"             | 13'-1"           | 120 lbs.           | 10' to 15'                     | 1AP,1CR,2R(Y)          | N/A                    | N/A                    |
|      | SE2-20-75† | N or LP                  | 75,000         | 21'-9"             | 13'-1"           | 120 lbs.           | 11' to 18'                     | 1AP,1CR,2R(Y)          | N/A                    | N/A                    |
|      | SE2-20-100 | N or LP                  | 100,000        | 21'-9"             | 13'-1"           | 120 lbs.           | 11' to 18'                     | 1AP,1CR,2R(Y)          | N/A                    | N/A                    |
|      | SE2-30-50  | N or LP                  | 50,000         | 31'-5"             | *17'-9"          | 160 lbs.           | 10' to 15'                     | 1AP,2CR,3R(Z)          | N/A                    | N/A                    |
|      | SE2-30-60  | N or LP                  | 60,000         | 31'-5"             | *17'-9"          | 160 lbs.           | 11' to 18'                     | 1AP,2CR,3R(Z)          | N/A                    | N/A                    |
|      | SE2-30-75  | N or LP                  | 75,000         | 31'-5"             | *17'-9"          | 160 lbs.           | 12' to 20'                     | 1AP,2CR,3R(Z)          | N/A                    | N/A                    |
|      | SE2-30-100 | N or LP                  | 100,000        | 31'-5"             | *17'-9"          | 160 lbs.           | 13' to 23'                     | 1AP,2CR,3R(Z)          | N/A                    | N/A                    |
|      | SE2-30-125 | N or LP                  | 125,000        | 31'-5"             | *17'-9"          | 160 lbs.           | 14' to 25'                     | 1AP,2CR,3R(Z)          | N/A                    | N/A                    |
|      | SE2-40-50  | N or LP                  | 50,000         | 41'-1"             | 22'-9"           | 190 lbs.           | 11' to 18'                     | 3CR(AA)                | 1AP,4R(D)              | N/A                    |
|      | SE2-40-60  | N or LP                  | 60,000         | 41'-1"             | 22'-9"           | 190 lbs.           | 11' to 18'                     | 3CR(AA)                | 1AP,4R(D)              | N/A                    |
|      | SE2-40-75  | N or LP                  | 75,000         | 41'-1"             | 22'-9"           | 190 lbs.           | 12' to 20'                     | 3CR(AA)                | 1AP,4R(D)              | N/A                    |
|      | SE2-40-100 | N or LP                  | 100,000        | 41'-1"             | 22'-9"           | 190 lbs.           | 13' to 23'                     | 3CR(AA)                | 1AP,4R(D)              | N/A                    |
|      | SE2-40-125 | N or LP                  | 125,000        | 41'-1"             | 22'-9"           | 190 lbs.           | 14' to 25'                     | 3CR(AA)                | 1AP,4R(D)              | N/A                    |
|      | SE2-40-150 | N or LP                  | 150,000        | 41'-1"             | 22'-9"           | 190 lbs.           | 15' to 27'                     | 3CR(AA)                | 1TP,4R(AB)             | N/A                    |
|      | SE2-40-175 | N or LP                  | 175,000        | 41'-1"             | 22'-9"           | 190 lbs.           | 16' to 30'                     | 3CR(AA)                | 1TP,4R(AB)             | N/A                    |
|      | SE2-50-100 | N or LP                  | 100,000        | 50'-9"             | *27'-5"          | 235 lbs.           | 15' to 27'                     | 4CR(AD)                | 1AP,5R(AE)             | N/A                    |
|      | SE2-50-125 | N or LP                  | 125,000        | 50'-9"             | *27'-5"          | 235 lbs.           | 15' to 27'                     | 4CR(AD)                | 1AP,5R(AE)             | N/A                    |
|      | SE2-50-150 | N or LP                  | 150,000        | 50'-9"             | *27'-5"          | 235 lbs.           | 16' to 30'                     | 4CR(AD)                | 1TP,5R(AF)             | N/A                    |
|      | SE2-50-175 | N or LP                  | 175,000        | 50'-9"             | *27'-5"          | 235 lbs.           | 17' to 35'                     | 3CR(AA)                | 1TP,1AP,5R(AH)         | N/A                    |
|      | SE2-50-200 | N or LP                  | 200,000        | 50'-9"             | *27'-5"          | 235 lbs.           | 18' to 40'                     | 3CR(AA)                | 1TP,1AP,5R(AH)         | N/A                    |
|      | SE2-60-125 | N or LP                  | 125,000        | 60'-5"             | 32'-5"           | 265 lbs.           | 16' to 30'                     | 1AP,1CR(AI)            | 4CR(AD)                | N/A                    |
|      | SE2-60-150 | N or LP                  | 150,000        | 60'-5"             | 32'-5"           | 265 lbs.           | 17' to 35'                     | 1TP,1CR,6R(AO)         | 4CR(AD)                | N/A                    |
|      | SE2-60-175 | N or LP                  | 175,000        | 60'-5"             | 32'-5"           | 265 lbs.           | 17' to 35'                     | 1TP,1AP,6R(AK)         | 4CR(AD)                | N/A                    |
|      | SE2-60-200 | N or LP                  | 200,000        | 60'-5"             | 32'-5"           | 265 lbs.           | 18' to 40'                     | 1TP,1AP,6R(AK)         | 4CR(AD)                | N/A                    |
|      | SE2-70-175 | N or LP                  | 175,000        | 70'-1"             | *37'-3"          | 300 lbs.           | 19' to 42'                     | 1TP,1AP,1CR(AQ)        | 7R(AR)                 | 4CR(AD)                |
|      | SE2-70-200 | N or LP                  | 200,000        | 70'-1"             | *37'-3"          | 300 lbs.           | 19' to 42'                     | 1TP,1AP,1CR(AQ)        | 7R(AR)                 | 4CR(AD)                |
|      | SE2-80-200 | N or LP                  | 200,000        | 79'-9"             | 42'-1"           | 330 lbs.           | 20' to 45'                     | 1TP,1AP,1CR(AN)        | 7R(AR)                 | 4CR(AD)                |

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

\*\* Recommended mounting heights are provided as a guideline. Actual conditions may dictate variations from this data.

^ Type packages refer to the tube package that will ship with models (length, diameter, combustion tube type and radiant tubes).



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# SE2 SPECIFICATIONS

## APPROVALS

- CSA Design Certified.
- Commercial/Industrial Approval.

## BURNER CONTROL BOX

- Sight glass for burner inspection.
- Totally enclosed components.
- Serviceable while in operation.
- Coated enameled steel.

## GAS CONNECTION

- ½ or ¾ Type 1 Rubber Hose

## GAS SUPPLY (Inches W.C.)

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

## POWER SUPPLY

- 120 VAC, 60 Hz GRD, 1 Ph., 3-wire.
- Ignition current - 4.8 amps.
- Running current - 1.1 amps.

## CONTROLS

- Air proving safety switch.
- Direct Spark Ignition.
- Pre-purge controls.
- Flame rod sensing.
- 120V thermostatic control.

## REFLECTOR

- Highly polished aluminum.
- Continuous overlap design.
- Anti-rattle tension springs.
- One reflector center support per heater.

## COMBUSTION & RADIANT TUBES

- 16ga. 4" O.D. aluminized coated steel radiant emitter tubes.
- Coated aluminized or Titanium treated primary combustion chamber (150-200 MBH models).
- Coated aluminized secondary combustion chamber (150-200 MBH models.)
- Slip-fit swaged tube connection.
- Turbulator baffle.

## COMBUSTION AIR INLET & VENTING

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

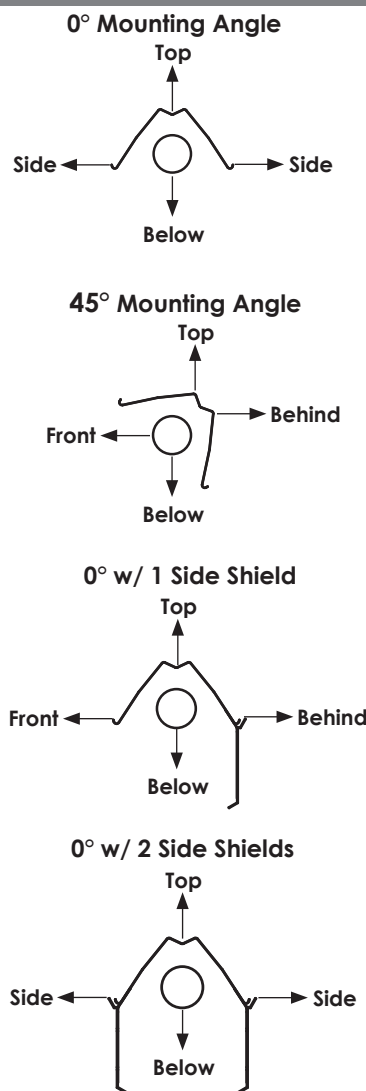
## LIMITED WARRANTY

- 1 year - Burner box components.
- 2 years - Combustion and radiant tubes.
- 3 years - Burner.

## DX2 CLEARANCES TO COMBUSTIBLES (IN INCHES)

| MODEL NO.                        | MOUNTING<br>ANGLE* | SIDE  |        |     |       |
|----------------------------------|--------------------|-------|--------|-----|-------|
|                                  |                    | FRONT | BEHIND | TOP | BELOW |
| SE2 (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    |
| SE2 (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    |
| SE2 (20, 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    |
| SE2 (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    |
| SE2 (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    |
| SE2 (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    |
| SE2 (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    |

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

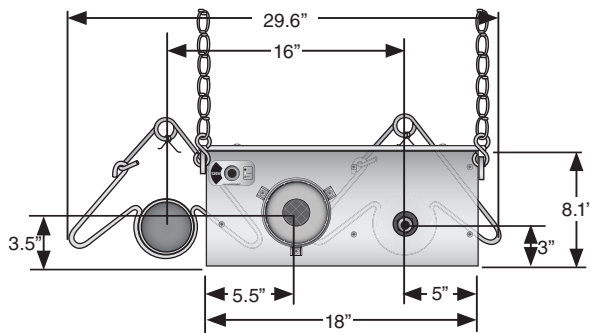


Read and understand the installation, operation and maintenance manual prior to installing or servicing this unit.

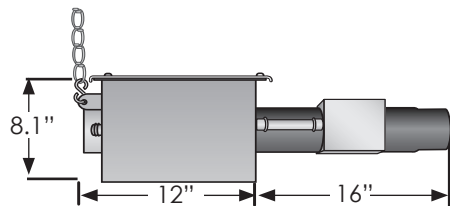
In locations used for the storage of combustible materials, signs must be posted adjacent to the heater's thermostat specifying stacking heights.

# SE2 SERIES FIELD DATA

Burner Control Box with U-Bend . End View

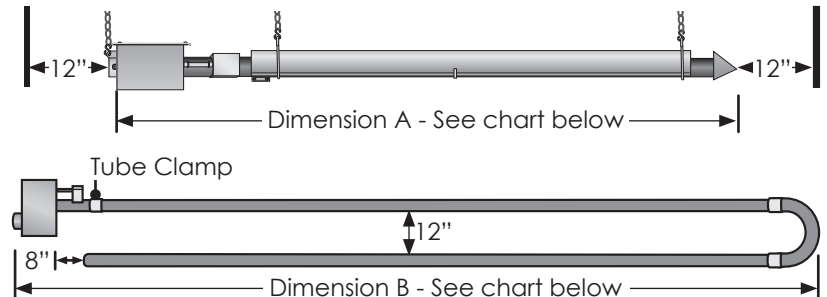


Side View



| MODEL NUMBER | DIMENSION A STRAIGHT | DIMENSION B U-TUBE |
|--------------|----------------------|--------------------|
| SE2-20       | 21' - 9"             | 13' - 1"           |
| SE2-30       | 31' - 5"             | *17' - 9"          |
| SE2-40       | 41' - 1"             | 22' - 9"           |
| SE2-50       | 50' - 9"             | *27' - 5"          |
| SE2-60       | 60' - 5"             | 32' - 5"           |
| SE2-70       | 70' - 1"             | *37' - 3"          |
| SE2-80       | 79' - 9"             | 42' - 1"           |

\*with 5EA-SUB



## SE2 SERIES OPTIONAL ACCESSORIES AND UPGRADES

| QTY. | PART #   | DESCRIPTION                             | NOTES   |
|------|----------|---|---|
|      | 10EA     | 10'X4" Tube & Reflector Extension       | Optional 10 ft. extension package. Maximum of 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 combustible 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. Maximim of one per unit.               |
|      | THCS     | Tube Heater Chain Set                   | 5 ft. chain set with two S-hooks used for hanging heater.                 |
|      | TR60     | 5'x4" 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"x6"x4" Aluminized Common Vent Fitting | Used for joining two heaters on one vent. Same thermostat required.       |
|      | YSM      | 4"x6"x4" Galvanized Common Vent Fitting | Used for joining two heaters on one vent. Same thermostat required.       |

### OPTIONAL UPGRADES

- ☐ **SILSEAL** Protects internal burner box components against contaminants.
- ☐ **5EA-SUB** Substitute one 10 ft. radiant tube and reflector for two 5 ft. pieces. This is ideal for making U-shaped heaters from 30 ft. and 50 ft. models. Maximum of one per heater.
- ☐ **24VAO** Internally mounted 24V controlled relay with power cord and terminal plug. Allows for separate circuit operation.
- ☐ **OD-KIT** For use when applying heaters outdoors.

### STAINLESS STEEL UPGRADES

- ☐ **SSRAO** 10 ft. Reflector Section.
- ☐ **SSTAO** 10 ft. Tube Section (75-150 MBH only).
- ☐ **SSTRAO** Tubes & Reflectors (75-150 MBH only), (not available on 30-125 models).
- ☐ **SSB-##** Mounting Brackets (## = heater length).
- ☐ **SSC-##** Tube Clamps (## = heater length).

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

# SE2 WRITTEN SPECIFICATIONS

## PRODUCTS

### 1. TUBULAR INFRARED HEATERS

- A. Basis-of-design product: Subject to compliance with requirements, provide Brant Radiant Heaters Limited; Re-Verber-Ray SE2 Series.
- B. Fuel type: Burner shall be designed for [natural] [propane] gas having characteristics same as those of gas available at project site.
- C. Combustion chamber: Shall be 4 inch O.D. 16ga. Titanium stabilized aluminized steel (150-200MBH to allow for the operating temperature to exceed the 1030°F as set forth in the ANSI Z83.20 Standard/CSA 2.34) or aluminized steel (below 150 MBH), finished with a high emissivity rated, corrosion resistant, black coating with an emissivity level documented at .92 or higher.
- D. Emitter tube: Shall be 4 inch O.D. 16 ga. hot-rolled steel.
- E. 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.
- F. 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.
- 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. Ignition system : Direct spark igniter flame rod sensing capabilities.
- J. 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.
- K. Control box: Heater's exterior control chassis shall be constructed of corrosion resistant enameled steel.
- L. The heater's top cover shall be constructed of ABS plastic material.
- M. 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.
- N. 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.
- O. The heaters shall utilize a downstream turbulator baffle for maximum heat transfer.
- P. Heater shall be supplied with a Type 1 rubber gas connector.
- Q. 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'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.
  - 3. The heater's blower motor shall be thermally protected and the motor's impeller shall be balanced.
  - 4. The heater's air flow control system shall provide a 7 second pre-purge prior to initiating burner operation
  - 5. No condensation shall form as a result of combustion in the combustion chamber or radiant tubes while at operating temperatures.
- R. Venting: Shall be per manufacturer approval and specifications.
- S. 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.