

CX SERIES TUBE HEATERS

ENGINEERING SUBMITTAL DATA – SINGLE STAGE LOW INTENSITY GAS FIRED INFRA-RED TUBE HEATERS & ACCESSORIES

SUBMITTED BY: _____

DATE: _____

JOB TITLE: _____

CONTRACTOR: _____

ADDRESS: _____

PHONE #: _____

CITY: _____

ADDRESS: _____

STATE: _____ ZIP: _____

CITY: _____

STATE: _____ ZIP: _____

ENGINEER: _____

LOCAL REPRESENTATIVE: _____

NOTES: _____

| QTY. | MODEL # | GAS TYPE (Circle One) | BTU/H INPUT | STRAIGHT LENGTH | 'U' TUBE LENGTH | WEIGHT | RECOMMENDED MOUNTING HEIGHTS** | FIELD USE ONLY | |
|------|-----------|--------------------------|----------------|--------------------|--------------------|----------|--------------------------------------|------------------------|------------------------|
| | | | | | | | | "TYPE" TUBE PKG #1^ | "TYPE" TUBE PKG #2^ |
| | CX-30-50 | N or LP | 50,000 | 31' - 4" | *17' - 8" | 160 lbs. | 9' to 14' | 30-4 SST-ALUM | N/A |
| | CX-30-60 | N or LP | 60,000 | 31' - 4" | *17' - 8" | 160 lbs. | 9' to 14' | 30-4 SST-ALUM | N/A |
| | CX-40-50 | N or LP | 50,000 | 41' - 0" | 22' - 8" | 190 lbs. | 9' to 14' | 40-4 SST-ALUM | N/A |
| | CX-40-60 | N or LP | 60,000 | 41' - 0" | 22' - 8" | 190 lbs. | 9' to 14' | 40-4 SST-ALUM | N/A |
| | CX-40-75 | N or LP | 75,000 | 41' - 0" | 22' - 8" | 190 lbs. | 10' to 15' | 40-4 SST-ALUM | N/A |
| | CX-40-80 | N or LP | 80,000 | 41' - 0" | 22' - 8" | 190 lbs. | 10' to 15' | 40-4 SST-ALUM | N/A |
| | CX-50-75 | N or LP | 75,000 | 50' - 8" | * 27' - 4" | 235 lbs. | 11' to 15' | 40-4 SST-ALUM | 10-4 ALUM |
| | CX-50-80 | N or LP | 80,000 | 50' - 8" | * 27' - 4" | 235 lbs. | 11' to 15' | 40-4 SST-ALUM | 10-4 ALUM |
| | CX-50-100 | N or LP | 100,000 | 50' - 8" | * 27' - 4" | 235 lbs. | 12' to 16' | 40-4 SST-ALUM | 10-4 ALUM |

* 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 tube).

N/A: This model is not available with this feature.

DETROIT RADIANT PRODUCTS CO.

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CX SPECIFICATIONS

APPROVALS

- CSA.
- Indoor/Outdoor Approval (with OD-Kit).
- Commercial/Industrial Approval.

BURNER CONTROL BOX

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

GAS CONNECTION

- 7/8 in. flare M FPT Connection to 1/2 in. x 24 in. (304) stainless flex connector provided.
- 1/2 in. F NPT ball valve & inlet tap incl.

COMBUSTION AIR INLET & VENTING

- Preset 4 in. combustion air inlet collar.
- Sidewall or roof venting - 4 in. diameter pipe up to 20 feet.

GAS SUPPLY – W.C.P. NAT LP

- Manifold pressure 3.5" 10.0"
- Min. Inlet pressure 5.0" 11.0"
- Max. Inlet pressure 14.0" 14.0"

POWER SUPPLY

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

COMBUSTION & RADIANT TUBES

- 16ga. 4" O.D. 304 Series stainless steel combustion chamber.
- 16ga. 4" O.D. uncoated aluminized steel radiant tube (second tube downstream burner).
- 16ga. 4" O.D. aluminized steel radiant tube treated with high temperature, corrosion resistant black coating, .95 emissivity. Slip-fit swaged connection.
- Turbulator baffle.

CONTROLS

- 100% safety shut-off.
- Moisture resistant control module.
- Air proving safety switch.
- Silicon carbide hot surface igniter.
- Pre-purge controls.
- Flame rod sensing.
- 120V thermostatic control (standard).

REFLECTOR

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

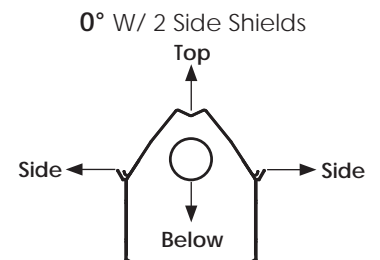
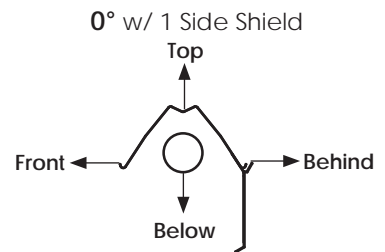
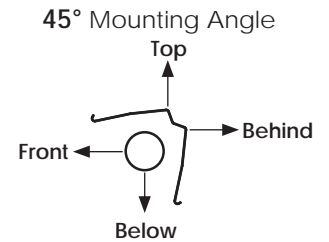
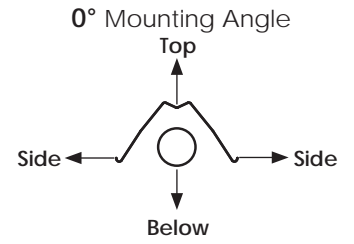
LIMITED WARRANTY

- 1 year - Burner box components.
- 5 years - Combustion and radiant tubes.
- 10 years - Stainless steel burner.

CX CLEARANCES TO COMBUSTIBLES (in inches)

| MODEL NO. | MOUNTING ANGLE* | SIDE | | | |
|----------------------|------------------|-------|--------|-----|-------|
| | | FRONT | BEHIND | TOP | BELOW |
| CX (30, 40)-50 [N,P] | 0° | 11 | 11 | 3 | 25 |
| | 45° | 39 | 8 | 10 | 25 |
| | W/1 side shield | 29 | 8 | 3 | 25 |
| | W/2 side shields | 9 | 9 | 3 | 25 |
| 20 ft. from burner | 0° | 7 | 7 | 3 | 25 |
| CX (30, 40)-60 [N,P] | 0° | 11 | 11 | 3 | 31 |
| | 45° | 39 | 8 | 10 | 31 |
| | W/1 side shield | 29 | 8 | 3 | 31 |
| | W/2 side shields | 9 | 9 | 3 | 31 |
| 20 ft. from burner | 0° | 7 | 7 | 3 | 31 |
| CX (40, 50)-75 [N,P] | 0° | 11 | 11 | 3 | 29 |
| | 45° | 39 | 8 | 10 | 29 |
| | W/1 side shield | 29 | 8 | 3 | 29 |
| | W/2 side shields | 9 | 9 | 3 | 29 |
| 20 ft. from burner | 0° | 7 | 7 | 3 | 29 |
| CX (40, 50)-80 [N,P] | 0° | 11 | 11 | 3 | 29 |
| | 45° | 39 | 8 | 10 | 29 |
| | W/1 side shield | 29 | 8 | 3 | 29 |
| | W/2 side shields | 16 | 16 | 3 | 29 |
| 20 ft. from burner | 0° | 7 | 7 | 3 | 29 |
| CX 50-100 [N,P] | 0° | 11 | 11 | 3 | 34 |
| | 45° | 39 | 8 | 10 | 34 |
| | W/1 side shield | 29 | 8 | 3 | 34 |
| | W/2 side shields | 16 | 16 | 3 | 34 |
| 20 ft. from burner | 0° | 7 | 7 | 3 | 34 |

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

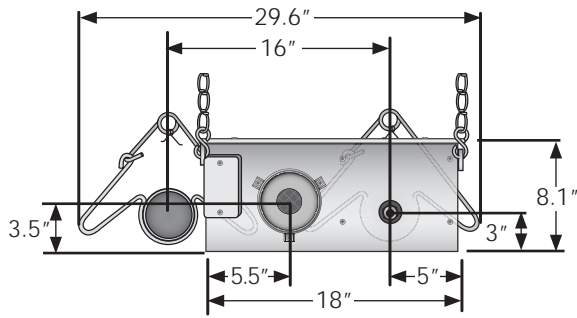


Read and understand the installation, operation and maintenance manual prior to installing or servicing this unit.

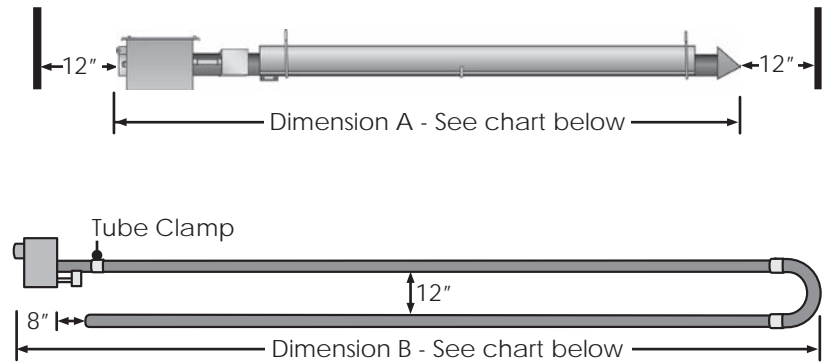
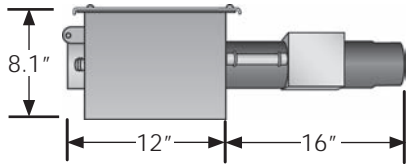
In locations used for the storage of combustible materials, signs must be posted adjacent to the heater's thermostat specifying stacking heights.

CX FIELD DATA

Burner Box End View • Shown in a U-Shaped Configuration



Burner Box Side View



| MODEL NO. | DIMENSION A (STRAIGHT) | DIMENSION B ('U' TUBE) |
|-----------|------------------------|------------------------|
| CX-30 | 31' - 4" | *17' - 8" |
| CX-40 | 41' - 0" | 22' - 8" |
| CX-50 | 50' - 8" | *27' - 4" |

*with 5EA-SUB

CX OPTIONAL ACCESSORIES AND UPGRADES

| QTY. | PART # | DESCRIPTION | NOTES |
|------|----------|---|---|
| | 10EA | 10' X 4" 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. 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 Fitting | Used for joining two heaters on one vent. Same thermostat required. |
| | YSM | 4" x 6" x 4" 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.
- OD-KIT** For use when applying heaters outdoors.
- PC-36** Three prong power cord set. Allows heater to be plugged into 120V grounded outlet.
- 24VAO** Internally mounted 24V controlled relay with power cord and terminal plug. Allows for circuit operation.
- 5EA-SUB** Substitutes one 10 ft. radiant tube and reflector for two 5 ft. sections. This is ideal for making U-shaped heater configurations from 30 ft and 50 ft. models. One per heater.

STAINLESS STEEL UPGRADES

- SSCBAO** - Control Box
- SSRAO** - 10 ft. Reflector Section
- SSFWAO** - Fan Wheel
- SSB-##** - Mounting Brackets (## = heater length)
- SSC-##** - Tube Clamps (## = heater length)
- SSE-SAO** - Side Shield Extension

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

CX SERIES WRITTEN SPECIFICATIONS

HEATER PARAMETER/SPECIFICATIONS

- Gas fired radiant tube heaters shall be furnished and installed in accordance with governing codes and as shown per drawing(s) provided. Radiant tube heaters shall be **RE-VERBER-RAY® CX SERIES** of the model numbers and inputs in BTU/H as manufactured by Detroit Radiant Products Company, Warren, MI 48089.
- Radiant tube heaters shall be Design Certified by CSA and comply with current Occupational Safety and Health Act (OSHA) Requirements. The supplier shall provide the CSA Certification Number and the heaters shall bear the CSA Seal of Certification.
- The supplier shall provide a manufacturer's published warranty covering the heater's stainless steel burner for a period of ten (10) years, combustion and radiant emitter tube(s) for a period of five (5) years, and all components utilized in the heater control assembly for a period of one (1) year.
- The supplier shall furnish the owner/contractor with _____ copies of the engineering specification forms, showing physical dimensions, installation detail, recommendations, control wiring diagrams, and spare parts list.
- Radiant tube heaters shall be designed to satisfactorily operate at a minimum inlet pressure of _____ inches W.C.P. to a maximum inlet pressure of _____ inches W.C.P.
- Radiant tube heaters shall be designed to operate without adjustments when burning natural gas having a heat value of _____ BTU per cubic foot with a specific gravity of _____, or when burning propane gas, have a heat value of 2500 BTU per cubic foot with a specific gravity of 1.53.
- An Installation, Operation and Maintenance manual shall be supplied with each heater.

RADIANT TUBE HEATER BURNER CONTROLS

- Heaters shall be equipped with a direct silicon carbide ignition system with a one (1)-time ignition trial to sensing mode and an infinite trial after sensing mode. Power supplied to each burner shall be 120 VAC, 60 Hz. Flame sensing shall be via an independent sensing rod and circuit.
- The main burner shall be constructed of stainless steel.
- The control assembly shall be Design Certified by CSA, shall provide main burner regulation, and shall be of the redundant type.
- Heater controls shall include a safety differential pressure switch to monitor combustion air flow, so as to provide complete burner shutdown due to insufficient combustion air or flue blockage.
- 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.
- The heater's blower motor shall be thermally protected and the motor's impeller shall be balanced.
- The heater's air flow control system shall provide a 45 second pre-purge prior to initiating burner operation.
- No condensation shall form as a result of combustion in the combustion chamber or radiant tubes while at operating temperatures.
- The heater shall incorporate moisture and corrosion resistant control module.

- Total heater shutdown shall occur in the event of circuit control lockout. An interruption of power (reset thermostat) will restart the firing sequence.

RADIANT TUBE HEATER CONSTRUCTION

- Heater's control housing shall be totally enclosed with a corrosion resistant enameled steel exterior. The controls shall be easily serviceable by removing one (1) panel.
- The main burner assembly shall be constructed of stainless steel.
- Heater's primary combustion chamber shall be 4 in. O.D. 16ga. uncoated 304 Series stainless steel.
- Heater's secondary combustion chamber (second 10 foot tube section downstream of burner) shall be 4 in. O.D. 16ga. uncoated aluminized steel.
- Heater's radiant emitter tube(s) shall be 4 in. O.D. 16ga. aluminized steel, finished with a highly emissive, corrosion resistant, black coating.
- The heater's combustion chamber and radiant emitter tube(s) shall incorporate a 4 in. swaged, interlocking connection in which the upstream tube slides into the next tube and is held by a bolted clamp.
- The silicon carbide hot surface igniter shall be readily accessible and serviceable without the use of tools.
- Reflectors shall be .025 polished aluminum with a multi-faceted design which includes reflector end caps. 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. Reflectors shall be assembled to the heater without the use of tools.
- The heaters shall utilize a downstream turbulator baffle for maximum thermal efficiency, 24 in. stainless steel flexible gas connector, hanging kit, and a 1/2 in. ball valve with inlet tap.
- Heaters shall be equipped with a sight glass allowing a visual inspection of igniter and burner operation from the floor.
- Radiant tube heaters shall be designed such that, at the customer's option, outside combustion air may be supplied without the use of additional supply fans. An air intake collar shall be supplied as part of the burner control assembly to accept a 4 in. O.D. supply duct.