Chromalox®

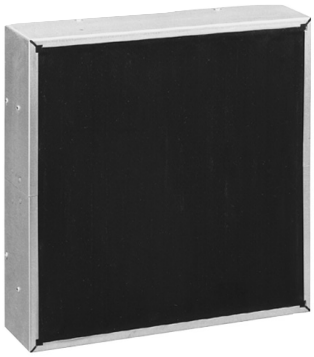
Installation

and

OPERATION INSTRUCTIONS

SERVICE REFERENCE	
DIVISION 4	SECTION CP
SALES REFERENCE (Supersedes PG426-2)	PG426-3
	161-058067-001
DATE OCTOBER, 1997	

Type CPL and CPH Wide Area Radiant Panels



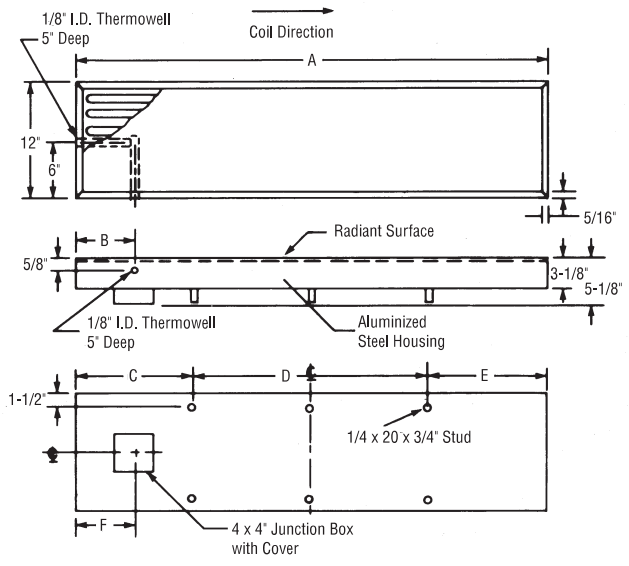


Figure A — Dimensions

Note: Selected Units have thermowell as indicated by suffix "T" in Model No.

Specifications — Table A

Model	Volts	kW	Phase	Dimensions — (In.) Overall Length A	B	C	D	E	F	No. Mounting Studs	Approx. Wt. (Lbs.)
CPL-0612T	120/240	1.1	1	6	3	3	-	-	3	2	3
CPH-0624T	240/480	1.8	1				-	-			
CPL-1224T		2.2	1		6		-				
CPH-1224	240/480	3.6	1	12	-	1.5	-	1.5	6	4	6
CPH-1224T		3.6	1		6		-				
CPL-2424T	240/280	4.3	1		6		-				
CPH-2423T	240	7.2	3		-		-				
CPH-2423T	240	7.2	3	24	6	1.5	-	1.5	6	4	12
CPH-2443	480	7.2	3		-		-				
CPH-2443T	480	7.2	3								
CPL-4823T	240	8.6	3		6						
CPL-4843	480	8.6	3		-						
CPL-4843T	480	8.6	3	48	6	9	15	9	6	6	24
CPH-4823T	240	14.4	3		6						
CPH-4843T	480	14.4	3								
CPL-6043T	480	10.8	3								
CPL-6023T	240	18.0	3	60	6	9	21	9	6	6	30
CPL-6043T	480	18.0	3								

*Model Numbers ending with the suffix "T" indicates equipped with Thermowells.

GENERAL

WARNING: ***This heater is not intended for use in hazardous atmospheres where flammable vapors, gases, liquids or other combustible atmospheres are present as defined in the National Electrical Code. Failure to comply can result in explosion or fire. See Operation section.***

Chromalox type CPL and CPH Wide Area Radiant Panels are designed to provide a maximum amount of radiant energy with very low heater convection losses. The wide, flat, infrared surface eliminates uneven heating of the work. A typical installation of 2-4" from the work surface will allow up to 80% of the input energy to be transferred to and absorbed by the work material.

Heater Construction Characteristics —

1. High quality iron base resistance wire imbedded in an asbestos-free, shock-resistant, fibrous ceramic material.
2. Fiberglass insulation to minimize heat loss.
3. Heavy gauge, heat-resistant, aluminized steel frame.
4. Quality, tubular, quartz thermowells with strain relief available on some models.
5. Easily expandable, the modular-type construction, makes it a simple matter to add-on additional heating units.

PRE-INSTALLATION

Note: Handle with Care. Some of the parts are of ceramic and subject to breakage if handled roughly or dropped.

Before Installing —

1. Carefully open carton and remove heater and parts bags. Inspect for concealed damage.

   Note: Any damage should be reported to the Delivery carrier at once. In order to file a concealed damage claim, keep the shipping carton with the heater for the carrier to inspect.
2. Before disposing of the carton and packing material, cross-check the parts received against the parts listed in Table B.
3. Check heater nameplate volt and watt rating against your power supply voltage.

Table B — Hardware Furnished

Model	Description — Quantity			
	#8-32 x 1/2" Stainless Steel Recessed Head Screws	#8-32 Stainless Steel Hex Nuts	Jumper Strap	Thermocouple Clamp Assembly*
CPL-0612T	3	3	1	1
CPH-0624T	3	3	1	1
CPH-1224	3	3	1	-
CPL-1224T	3	3	1	1
CPH-1224T	3	3	1	1
CPH-2423	3	3	-	-
CPH-2443	3	3	-	-
CPH-2424T	3	3	1	1
CPH-2423T	3	3	-	1
CPH-2443T	3	3	-	1
CPL-4843	3	3	-	-
CPL-4823T	3	3	-	1
CPL-4843T	3	3	-	1
CPH-4823T	3	3	-	1
CPH-4843T	3	3	-	1
CPL-6043T	3	3	-	1
CPH-6023T	3	3	-	1
CPH-6043T	3	3	-	1

*Packed in separate bag.

MOUNTING

WARNING: ***Hazard of Electric Shock. Disconnect all power before installing heater.***

1. Heaters may be mounted in either a horizontal or vertical position. The recommended distance from work is between 2" (min.) and 4". **Note:** Increasing the distance between the heater and the work will decrease efficiency.

DANGER — *Hazard of Fire.*

Avoid direct contact of heater case with any combustible surfaces. Heaters should be spaced so that combustible surfaces do not exceed 194°F when heaters are energized.

2. If more than one heating panel is to be used, allow a minimum of 1/32" between modules for heat expansion.
3. Provide suitable supporting framework using angle iron, strap iron or continuous slot framing. See Figures B thru E for suggested mounting methods.
4. Refer to **Figure A — Dimensions** for bolt hole locations. Provide corresponding 3/8" diameter heater mounting holes in framework. These oversize holes provide for heater expansion.
5. Attach thermocouple clamp assembly to heater frame when thermocouple is used. Insert thermocouple carefully all the way into the Thermowell. Withdraw 1/8" before clamping into position. Use Chromalox Model C-700KU (or equivalent) thermocouple.

MOUNTING

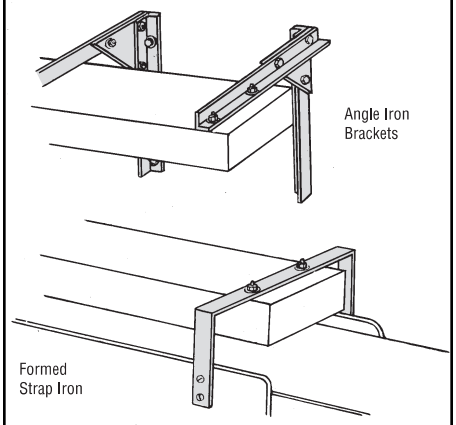


Figure B — Single Heater Mountings

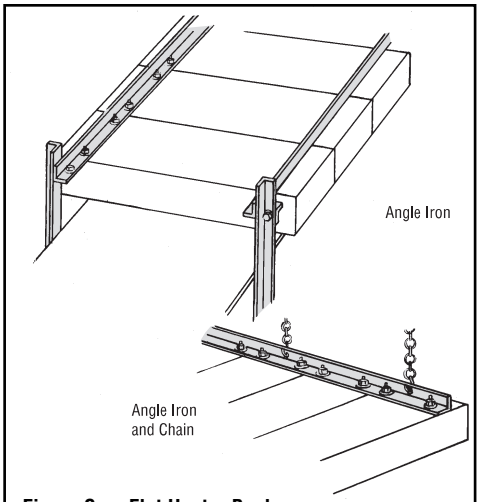


Figure C — Flat Heater Banks

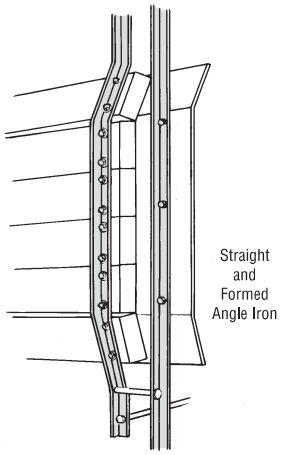
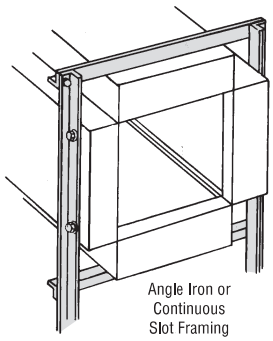
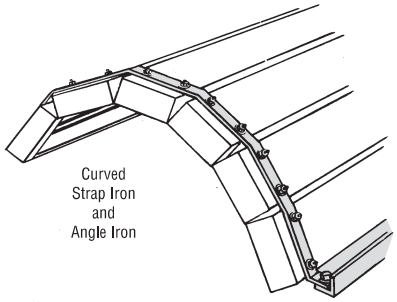
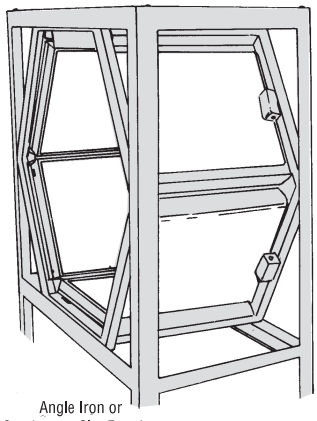
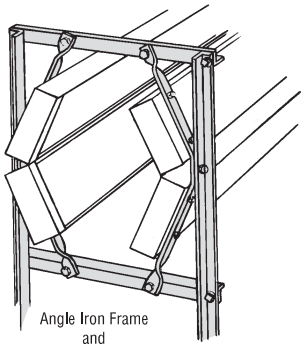


Figure D — Large Oven Sections









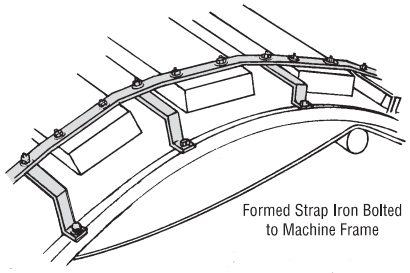


Figure E — Formed Ovens

6. Install one asbestos washer (provided) over each heater stud prior to positioning heater in frame.
7. Place heater in frame and handtighten the 1/4-20 self-locking lock nuts. Wrench tighten 1/4 to 1/2 turn making sure heater is free to move in mounting holes to permit expansion due to heating.

WIRING

WARNING: ***Hazard of Electric Shock. Heater must be effectively grounded in accordance with the National Electrical Code to eliminate shock hazard.***

1. All wiring should be done in accordance with the National Electrical Code and with local codes by a qualified person. Use nickel or nickel-clad, copper wire with insulation good for 375°C (700°F) into heater terminal box.
   Note: These leads must extend out of the heated area.
2. Firmly crimp the crimp connectors to the heater end of the connecting wires and attach to heater terminals using the #8-32 stainless steel screws and nuts (provided). Make sure that these connections are tight.
3. Heaters are provided in either three-phase or in single-phase/dual voltage. **Note:** A jumper strap (provided) must be installed for the lower voltage of a dual voltage heater as per Figure F.
4. Wire heaters per the appropriate wiring diagram Figures F and G.

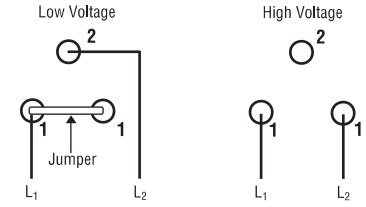


Figure F — Single Phase/Dual Voltage

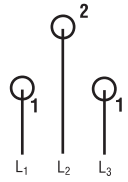


Figure G — Three Phase

WIRING

5. Controls —
When heaters are installed in groups or banks, it is recommended that a closed-loop feed-back control system be utilized with a type K Cromel Alumel thermocouple (Chromalox Model C-700KU or equivalent) installed in the Thermowell of one of the heaters.

It is strongly recommended that a second type K thermocouple also be installed in a second heater and connected to a high-limit control for over-temperature protection to protect the heaters. This control should be set to limit heater temperature to 1500°F or lower.

WARNING: ***Users should install adequate controls and safety devices with their electric heating equipment. Where the consequences of failure may be severe, back-up controls are essential. Although the safety of the installation is the responsibility of the user, Chromalox will be glad to make equipment recommendations.***

OPERATION

DANGER — ***Danger of Fire.***

In applications where flammable volatiles are released in continuous process ovens, the rate of safety ventilation shall not be less than 10,000 cu. ft. of fresh air referred to 70°F per gallon of solvent evaporated in the oven. Reference NFPA Bulletin 86 "Standard For Ovens and Furnaces". This bulletin may be obtained from the National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02269.

Upon initial start-up, a non-toxic white smoke will be emitted which is normal. The smoke is caused by the burning off of the moisture and binders used in construction.

MAINTENANCE

WARNING: ***Hazard of Electric Shock. Disconnect power before servicing this heater.***

1. Periodically check all electrical connections and tighten if necessary.

2. If heater fails to heat:
A. Check for power to heater.
B. Check for open-circuited elements. **Note:** Elements are not replaceable. If elements are open-circuited, replace heater.

Limited Warranty:
Please refer to the Chromalox limited warranty applicable to this product at
http://www.chromalox.com/customer-service/policies/termsofsale.aspx.

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