

Chromalox®

Installation Instructions and RENEWAL PARTS IDENTIFICATION

SERVICE REFERENCE

DIVISION 4		SECTION KBL	
SALES REFERENCE	(Supersedes PD430-1)	PD430-2	
161-058004-001			
DATE JANUARY, 2006			

Type KBLC and KBLS Over-the-Side Immersion Heaters



Specifications

Model	Volts	kW (11 W/In ²)	Dimensions (In.)	
			Riser Height	Min. Opening Clearance
KBLC – Steel Construction				
KBLC-24	120 or 240	2.2	36	12-3/4
KBLC-24T2	120 or 240	2.2	36	12-3/4
KBLC-24T3	120 or 240	2.2	36	12-3/4
KBLC-28	240 only	4.4	36	17-3/4
KBLC-28T2	240 only	4.4	36	17-3/4
KBLC-28T3	240 only	4.4	36	17-3/4
KBLS – Steel Construction				
KBLS-244	120 or 240	2.2	36	12-3/4
KBLS-244T1	120 or 240	2.2	36	12-3/4
KBLS-244T2	120 or 240	2.2	36	12-3/4
KBLS-244T3	120 or 240	2.2	36	12-3/4
KBLS-288	240 only	4.4	36	17-3/4
KBLS-288T1	240 only	4.4	36	17-3/4
KBLS-288T2	240 only	4.4	36	17-3/4
KBLS-288T3	240 only	4.4	36	17-3/4

Note: Consult factory for specific installation instructions for heaters with additional features not detailed in this installation guide. Such additional features may include thermocouples supplied as a special order modification.

GENERAL

Chromalox Type KBL over-the-side immersion heaters are primarily designed for use in drums containing wax, lard, grease, coconut oil and other heat-sensitive materials having low melting-points.

1. Heater Construction Characteristics

- A. High-quality Nichrome resistance wire held in place by compacted Magnesium Oxide in either steel sheath (most applications) or stainless steel sheath (corrosive applications).

WARNING: It is the responsibility of the purchaser of the heater to make the ultimate choice of sheath material based upon his knowledge of the chemical composition of the corrosive solution, character of the materials entering the solution, and controls which he maintains on the process. Chromalox cannot warrant any electric immersion heater against failure by sheath corrosion if such failure is the

result of operating conditions beyond our control.

- B. Low watt density.
C. Steel terminal box painted with heat and acid-resistant paint.
D. Lightweight and portable yet heavy-duty. (Weighs only 18 lbs. or less).
E. Riser type construction puts the heat at the bottom inducing natural "stirring action" and evenly distributed temperatures.

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.

INSTALLATION

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

1. Before installing the type KBL heater, inspect it for possible damage which may have occurred during shipment. Also, check to insure that the line voltage is the same as that stamped on the nameplate.
2. **IMPORTANT:** Mount heater in the tank so that the liquid level will always be above the effective heated portion of the heater. If the heater is not properly submerged, it will overheat and damage the heating elements and create a possible fire hazard due to excessive sheath temperatures. (See Note 5)
3. Where work will pass over or near equipment, additional protection, such as a metal guard, may be needed.

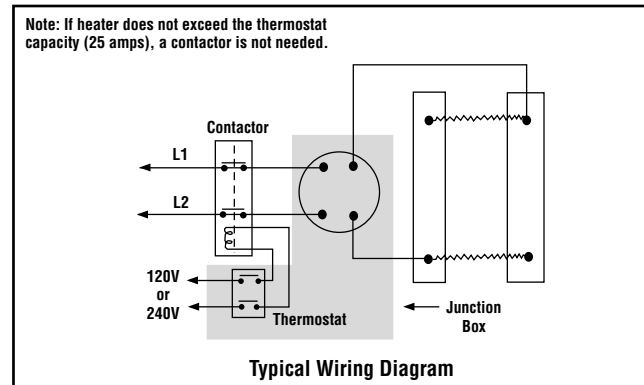
4. In an electroplating operation the heaters are not, under any circumstance, to be placed between the electrodes and the work.
5. When melting solids by direct immersion, a surface vent should be provided to allow gases to escape. Operate the heater on half voltage until melted material completely covers the heater area.
6. A drip loop is recommended to minimize passage of moisture along wiring into terminal box and connections.
7. **WARNING: Hazard of Fire.** Since these heaters are capable of developing high temperatures, extreme care should be taken to:
 - A. Avoid installing heaters in an atmosphere containing combustible gases and vapors.
 - B. Avoid contact between heater and combustible material. Keep combustible materials far enough away to be free of the effects of high temperatures.

WIRING

WARNING: Hazard of Shock. Any installation involving electric heaters must be effectively grounded in accordance with the National Electrical Code to eliminate shock hazard.

1. Electrical wiring to heater must be installed in accordance with the National Electrical Code and local electric codes by a qualified person as defined in the NEC.
2. When element wattages are not equal, heaters must not be connected in series.
3. Electrical wiring to heater should be contained in Rigid Conduit or in sealed Flexible Metal hose to keep corrosive vapors and liquid out of the terminal housing. Conduit should terminate at some remote area free of corrosive vapors. If high humidity is encountered, the conduit should slope away from the heater terminals to keep condensate away from the heater.
4. If flexible cord is employed with the heater, a watertight connector should be used for entry of the cord into the terminal box.
5. Make sure heater is grounded by attaching ground conductor, traceable back to service entrance, to the ground terminal located

inside the terminal box. If heater is used in an electroplating tank, the heater should be grounded externally to the tank wall to minimize stray plating currents in heater sheath that may cause sheath corrosion.



OPERATION

1. Do not operate heater at voltages in excess of that stamped on the heater since excess voltage will shorten heater life.
2. Always maintain 6 to 8" of solution above the heated portion of the element to prevent exposure of the effective heated length. If the heater is not properly submerged, it may overheat and shorten heater life.
3. Sludge should not be allowed to build-up to the point where it contacts heater as this can lead to premature heater failure.
4. If heater is inactive for a prolonged period or subjected to excessive moisture during shipments energize at half voltage for a period of time (generally overnight) before operating at rated voltage.

MAINTENANCE

WARNING: Hazard of Shock. Disconnect all power to heater before servicing or replacing heaters.

1. Heaters should be checked periodically for coating and corrosion build-up and cleaned if necessary.
2. Tank should be checked regularly for sediment around the end of the heater as sediment can act as an insulator and shorten heater life.
3. Check for loose terminal connections.
4. If corrosion is indicated in the terminal housing, check terminal box gasket and replace if necessary. Also check the conduit layout to correct the conditions that allow corrosion to enter the terminal housing.

RENEWAL PARTS IDENTIFICATION

Thermostat: (All with 84" capillary)	
0-100°F	300-048518-005
80-250°F	300-048518-001
200-500°F	300-048518-003
Thermostat Mounting Brackets	027-072456-001

Thermostat Knob:	
0-100°F	169-019605-002
60-250°F	169-019604-001
200-500°F	169-019604-002
Gasket	132-012603-001
Cover	080-012602-001

Limited Warranty:

Please refer to the Chromalox limited warranty applicable to this product at <http://www.chromalox.com/customer-service/policies/termsforsale.aspx>.

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PRECISION HEAT AND CONTROL

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