KIM HOTSTART
SINCE 1942

*Registration to ISO 9001*

# INSTALLATION AND MAINTENANCE INSTRUCTIONS
## *INDUSTRIAL LIQUID IMMERSION HEATERS*

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## ⚠ WARNING

POWER MUST BE OFF BEFORE WORKING ON OR REMOVING HEATING ELEMENT. ALL ELECTRICAL WORK MUST BE DONE BY QUALIFIED PERSONNEL IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND APPLICABLE STATE AND LOCAL CODES.

## ⚠ WARNING RISK OF FIRE OR EXPLOSION

A APPROVED LIQUID LEVEL CONTROL MUST BE PROVIDED AS DESCRIBED IN THE CAUTION LABEL ON THE HEATER ENCLOSURE. IF THE HEATER ELEMENT IS NOT EQUIPPED WITH A HIGH TEMPERATURE LIMIT SWITCH OR THERMOSTAT, A TEMPERATURE CONTROL MUST BE ADDED.

## ⚠ CAUTION

INSTALLERS AND OPERATORS OF THE EQUIPMENT MUST BE THOROUGHLY FAMILIAR WITH THESE INSTRUCTIONS BEFORE COMMENCING WORK. HOT SURFACES ARE A POTENTIAL INJURY HAZARD. USE CAUTION WHEN WORKING ON OR AROUND THE HEATER.

## *NOTICE*

THE IMMERSION ELEMENT MUST BE INSTALLED IN A LOCATION TO ASSURE COMPLETE IMMERSION OF ALL ELEMENT HEATING SURFACES AT ALL TIMES. PREMATURE ELEMENT FAILURE COULD RESULT. AVOID INSTALLATION WHERE THE HEATING ELEMENT IS IN CONTACT WITH SLUDGE AT OR NEAR THE BOTTOM OF THE TANK. MOUNTING THREADS SHOULD BE COVERED WITH PIPE COMPOUND TO ELIMINATE THE POSSIBILITY OF DAMAGE DURING INSTALLATION.

### TERMINAL AND CONDUIT CONNECTIONS:

THE ELECTRICAL ENCLOSURE OF THE IMMERSION HEATING ELEMENT MUST REMAIN COVERED TO PROTECT TERMINALS FROM MOISTURE AND VAPOR. MAKE CERTAIN THAT PROPER COVERS ARE USED FOR THE INSTALLED CONDITIONS. (HAZARDOUS LOCATION, NEMA TYPE 4 WET LOCATION, STANDARD GENERAL PURPOSE)

TERMINATIONS IN ALL ENCLOSURES REQUIRE THE WIRE BE RATED AT A MINIMUM OF 105° C (221° F). SELECTED WIRE MUST BE SIZED IN ACCORDANCE WITH HEATER AMPERAGE.

### MAINTENANCE:

TO ENSURE LONG LIFE OF THE ELEMENT, PERIODIC INSPECTION AND CLEANING OF THE HEATING ELEMENT TO REMOVE COATING AND CORROSION IS RECOMMENDED. SHUT OFF POWER BEFORE DISASSEMBLY AND USE CAUTION TO AVOID CONTACT WITH HOT SURFACES. RELIEVE PRESSURE BEFORE REMOVING ELEMENT FROM TANK.

# TECHNICAL INFORMATION

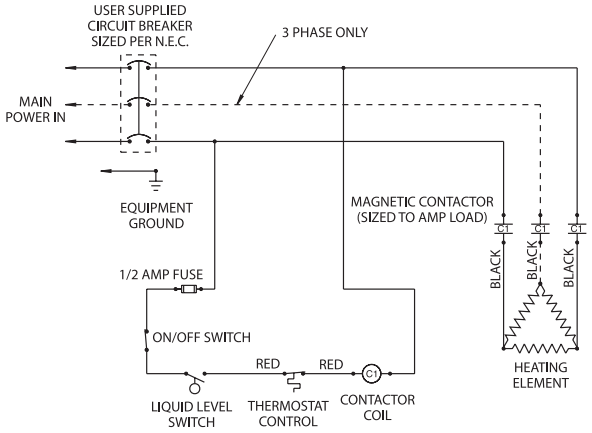
*KIM HOTSTART MANUFACTURING COMPANY*
*www.kimhotstart.com*
*CUSTOMER SUPPORT: (509) 536-8660*

***Registration to ISO 9001***

KIM HOTSTART SINCE 1942

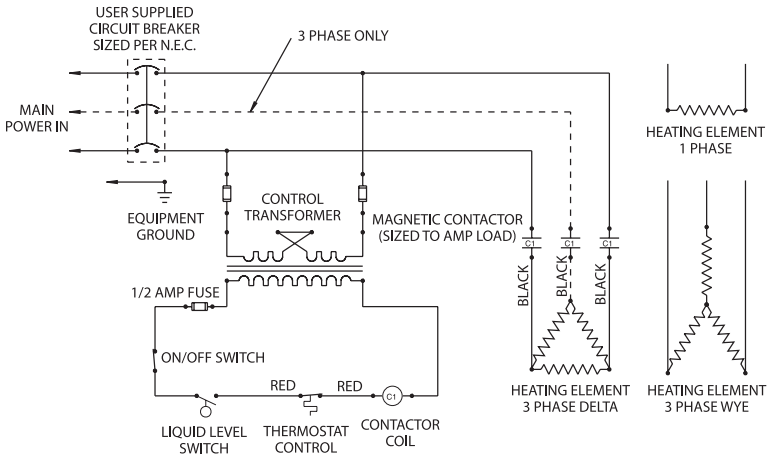
216060-003 Rev 2

## WIRING DIAGRAMS



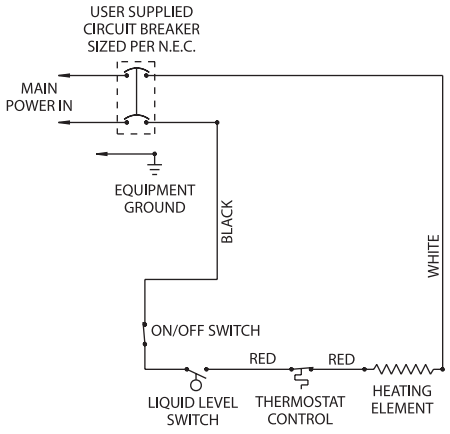

### TYPICAL WIRING DIAGRAM

WIRING DIAGRAM FOR HEATING ELEMENTS WITH THERMOSTAT FOR SINGLE OR THREE PHASE UNDER 480 VOLTS. SEE TABLE BELOW FOR THERMOSTAT AMPERAGE LIMITS.




### TYPICAL WIRING DIAGRAM

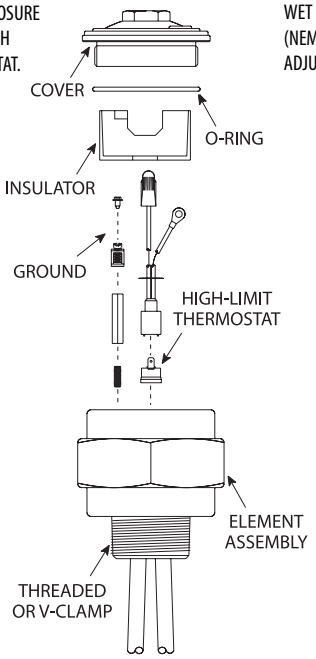
WIRING DIAGRAM FOR HEATING ELEMENTS WITH THERMOSTAT FOR SINGLE OR THREE PHASE 480 VOLTS AND OVER. SEE TABLE BELOW FOR THERMOSTAT AMPERAGE LIMITS.



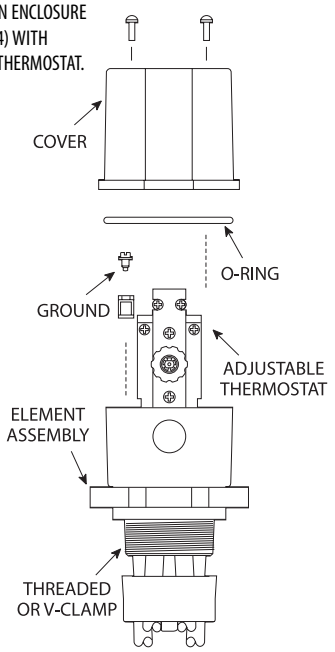

### TYPICAL WIRING DIAGRAM

WIRING DIAGRAM FOR SINGLE PHASE HEATING ELEMENTS WITHOUT CONTROL CIRCUIT. SEE TABLE BELOW FOR THERMOSTAT AMPERAGE LIMITS.

HAZARDOUS LOCATION ENCLOSURE (CLASS I, GROUP D DIV I) WITH NON-ADJUSTABLE THERMOSTAT.

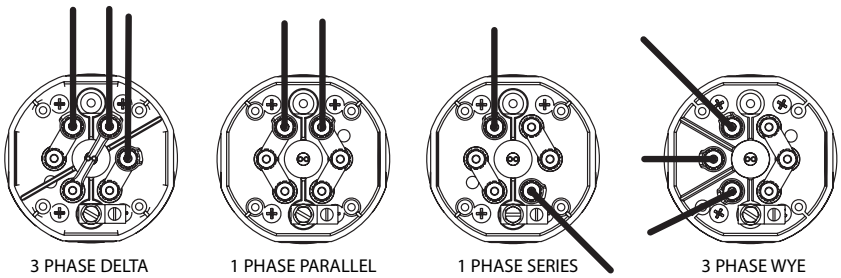



WET LOCATION ENCLOSURE (NEMA TYPE 4) WITH ADJUSTABLE THERMOSTAT.




| THERMOSTAT AMPERAGE LIMITS | |
|---|---|
| HIGH-LIMIT THERMOSTAT | ADJUSTABLE THERMOSTAT |
| 15 AMPS @ 120 VOLTS<br>10 AMPS @ 240 VOLTS | 30 AMPS @ 120, 240 VOLTS<br>20 AMPS @ 480 VOLTS |

ELEMENT CONNECTION CONFIGURATIONS:



3 PHASE DELTA 3 HAIRPIN

1 PHASE PARALLEL 3 HAIRPIN

1 PHASE SERIES 3 HAIRPIN

3 PHASE WYE 3 HAIRPIN