Cast-In Aluminum/Bronze Heaters-Installation, Wiring, Operation and Maintenance

Installation:

1. Allow sufficient space for thermal expansion. The amount of space required depends upon the Cast-In Heater size and operating temperatures.

2. Surface being heated must be free of any foreign materials and have a smooth finish.

3. Make sure that the casting is properly seated. The clamping devices used should be tightened down as much as possible.

4. After initial heat-up, retighten clamping devices to assure good surface contact.

5. Thermal insulation can be used to reduce heat losses, providing insulation does not come in contact with heaters.

6. Avoid mounting heaters in an atmosphere containing combustible gases and vapors.

7. On Cast-In Heaters equipped with water cool jackets, fittings must be securely tightened due to the high concentration of steam pressure buildup inside the cooling jacket. Flare type or braze seal fittings are recommended over compression type fittings.

8. To prevent overheating and heater failure, adequate temperature controls should be installed. For assistance in selecting temperature controls and thermocouples, contact NPH.

Wiring:

1. For connections at the heater terminals, use high temperature nickel conductor lead wire or alloy bus bar. Keep all electrical connections properly protected to eliminate electric shock to machine operators.

2. Heaters of equal wattage and voltage can be series connected for next higher voltage.

3. Heater installations must be properly grounded to eliminate electric shock hazard, and wiring must comply with electrical codes.

4. Always have a qualified electrician perform all wiring and connection of heaters and control components.

Operation:

1. Do not operate above rated voltage. Excess voltage will result in heater failure.

2. Do not operate Cast-In Heaters above recommended temperatures. Excess temperatures will result in heater failure.

3. Electrical terminals must be kept free of contaminants, as spillage of plastic, water, oils, and their vapors can cause electric shorts, resulting in heater failure.

4. Cast-In Heaters with water cooling jackets must not be cycled to operate simultaneously. Thermal stresses may result in shorter heater life.

5. The water used on Cast-In Heaters with cooling jackets must be properly treated. Hard water contains corrosive media that will contaminate the tubing on the cooling jacket, producing stress corrosion cracks and resulting in shorter heater life.

Maintenance:

1. Never perform any type of service on heaters prior to disconnecting all electrical power.

2. To assure good surface contact, periodically check clamping system.

3. Repeat cycling of temperature controls can indicate poor surface contact or a burned-out heater.

4. Heater terminals must be kept free of plastics, oil, water, and any other foreign matter. As these materials carbonize, they create electrical shorts.

5. Heater terminal electrical connections must be kept tight. Loose connections can overheat and eventually destroy the connection or the heater terminal.

6.Water lines must be periodically checked for leaks. Water on heater terminals can be detrimental to the entire heating system.

7. Thermocouples must be kept free of contaminants and be checked for good response to temperature changes. Our recommendation is to change them periodically as a bad thermocouple can be the cause of destroying an entire heating zone.

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