

Open Coil Custom Heater – Sample Specification

A job specification can be prepared by using the following information. Simply darken the applicable circles. Material which is part of the basic specification has already been darkened. Additional copies of this specification guide are available from your local HEATREX representative.

- 1. Duct heaters shall be HEATREX:
 - Type KUB Custom Slip-in Heater
 - Type PUB Custom Flanged Heater
- 2. Approvals – Heaters and panelboards (if required) shall meet the requirements of the National Electrical Code and shall be listed by Underwriters Laboratories for zero spacing between the duct and combustible surfaces and for use with heat pumps and air conditioning equipment.
- 3. Heating elements shall be open coil, 80% nickel, 20% chromium, Grade A resistance wire. Type C alloys containing iron or other alloys are not acceptable. Coils shall be machine crimped into stainless steel terminals extending at least 1" into the airstream and all terminal hardware shall be stainless steel. Coils shall be supported by ceramic bushings staked into supporting brackets.
- 4. Heater frames and terminal boxes shall be corrosion resistant steel. Unless otherwise indicated, the terminal box shall be NEMA 1 construction and shall be provided with a hinged, latching cover and multiple concentric knockouts for field wiring.
- 5. All heaters shall be furnished with a disc type, automatic reset thermal cutout for primary overtemperature protection. All heaters shall also be furnished with disc type, load-carrying manual reset thermal cutouts, factory wired in series with heater stages for secondary protection. Heat limiters or other fusible overtemperature devices are not acceptable.
- 6. Heaters shall be rated for the voltage, phase, and number of heating stages indicated in the schedule. All three-phase heaters shall have equal, balanced, three-phase stages. All internal wiring shall be stranded copper with 105°C insulation and shall be terminated in crimped connectors or box lugs.
- 7. Terminal blocks shall be provided for all field wiring and shall be sized for installation of 75°C copper wire, rated in accordance with NEC requirements.
- 8. Heaters shall be furnished, either with the Control Option specified in the schedule and described below, or with the specific components listed in the schedule.
 - Option G – Thermal cutouts, airflow switch, contactors, fuses (if over 48 amps), control circuit transformer (where required) and built-in snap-acting door interlocked disconnect switch.
 - Option J – Thermal cutouts, airflow switch, PE switches, contactors (where required), fuses (if over 48 amps), control circuit transformer (where required) and built-in snap-acting door interlocked disconnect switch.
 - Option K – Thermal cutouts, airflow switch, contactors (where required), SCR (with step controller and contactors, if heater draws over 96 amps, three-phase or 192 amps single-phase), fuses (if over 48 amps), control

circuit transformer (where required), and built-in snap-acting door interlocked disconnect switch.

- 9. When specified in the schedule, or below, heaters will be supplied with the following Special Features:
 - Airflow switch for negative pressure operation
 - Insulated terminal box
 - Dust-tight terminal box
 - Special terminal box construction
 - NEMA 1 ○ UL3R ○ NEMA 12 ○ NEMA 4 ○ NEMA 4X
 - Stainless steel frame and terminal box
 - Aluminized steel frame and terminal box
 - Insulated duct construction for slip-in heaters
 - Unheated section
 - Pressure plate
 - Protective screen(s); ○ one side ○ both sides
 - Controls mounted in remote panelboard
 - NEMA 1 ○ UL3R ○ NEMA 12 ○ NEMA 4 ○ NEMA 4X
 - Deletion of transformer
 - Deletion of transformer and contactor
 - Transformer primary fusing
 - Transformer secondary fusing (Class II)
 - Additional user control circuit voltage (specify user VA)
 - Deletion of disconnect switch
 - Fused disconnect switch (≤ 48 amps)
 - Fusing for heaters rated 48 amps or less
 - "Low Airflow" pilot light
 - "Heater On" pilot light
 - "Overtemperature" pilot light
 - Each "Stage On" pilot light(s)
 - Fan relay (instead of airflow switch)
 - Fan relay (in addition to airflow switch)
 - Step controller
 - Linear limit automatic reset thermal cutout
 - 25 watts per square inch resistance coils
 - 35 watts per square inch resistance coils
 - Built-in PE transducer
 - Round Duct Construction
- 10. When specified in the schedule, or below, heaters shall be supplied with the following thermostats:
 - Pilot duty single stage room thermostat
 - Pilot duty digital display single stage room thermostat
 - Pilot duty two stage digital display room thermostat
 - Pilot duty two or three stage programmable with digital display room thermostat
 - Proportional electronic room thermostat
 - Pilot duty single stage duct thermostat
 - Pilot duty two stage duct thermostat
 - Proportional electronic duct thermostat with set point adjuster
 - Special inputs (135 ohms, 2200 ohms, 4-20 mA, 0-10 VDC)