

BRASCH

INSTALLATION, OPERATING AND MAINTENANCE INSTRUCTIONS FOR BRASCH COMPACT UNIT HEATERS USED IN HAZARDOUS LOCATIONS

GENERAL

BRASCH COMPACT Unit Heaters are cCSAus certified for Class I, Division 1, Group D; Class I, Zone 1 Group IIA . The Heaters are also suitable for Division 2 locations as indicated, but only when wiring and sealing per Division 1 requirements.

The maximum operating temperature ignition code is stamped on the data plate. NEVER operate the heater in an atmosphere with an ignition code temperature lower than this rating.

For details on the particular hazardous environments having the potential for explosion, refer to Articles 500 through 516 of the National Electrical Code, and/or Section 18 of the Canadian Electrical Code, Part I.

The assembly consist of heater elements, electrical motor with fan and an explosion proof box which contains control elements. Each unit is thermostatically controlled.

INSTALLATION

WARNING

1. BRASCH strongly recommends this heater be installed by qualified personnel familiar with the National Electrical Code and/or the Canadian Electrical Code requirements for hazardous locations as well as any local codes. It is the responsibility of the installer to verify the safety and suitability of the installation.

MECHANICAL INSTALLATION

2. Do not install the heater in an atmosphere where gases whose ignition temperatures are lower than the maximum operating temperature of the heater as shown on the nameplate are present, or in any location other than that shown on the nameplate.
3. Install the heater allowing at least 8 inches of free space in front and either side of the unit.
4. Install the heater with wall or ceiling mounting brackets furnished with the unit. Optional threaded rods may be supplied for mounting. (See Fig. 3).
5. If louvered grille is furnished with the unit, it can be installed with louvers deflecting the air up or down, 45° to the axis of the shroud.

ELECTRICAL INSTALLATION

6. Follow the wiring diagram on the inside of the control enclosure.

7. Supply connections must be made with copper wiring rated for at least 90°C.
8. If supply connections are for 250 volts or greater, all wiring must be insulated for 600 volts.
9. All the supply connections must be made according to the latest NEC requirements for Class I and Class II locations. All the conduits entering the enclosures must be provided with seals at the enclosures.
10. Supply conductors must be sized for at least 125% of the rated load, calculated as follows:

$$\text{Single Phase Units} = \frac{\text{Kilowatts per set of terminals} \times 1250}{\text{Voltage}}$$

$$\text{Three Phase Units} = \frac{\text{Kilowatts per set of terminals} \times 1250}{\text{Voltage} \times 1.73}$$

11. National Electrical Code (NEC) and Factory Mutual (F.M.) require the heater manufacturer to supply (a) overcurrent protection if the total current exceed 48 amps and (b) any contactors required for the proper functioning of the limit controls. If these devices are not built into the heater package, they are supplied in a separate panelboard to be mounted in a remote location. Do not install the panel in any location other than that shown on the nameplate of the panel. The wiring between the panel and the heater must be done in accordance with the NEC.
12. If not built-in, install a line disconnect switch or main circuit breaker in accordance with Article 424-19 of the NEC.
13. All electrical connections in the heaters, including both field and factory made connections should be checked for tightness before operating the heaters. In addition, after a short period of operation, all connections should again be checked for tightness.

OPERATION AND MAINTENANCE

14. The BRASCH COMPACT Explosion-proof Electric Unit Heaters may be operated normally with inlet air temperatures of 80°F (26°C) or less, and in atmospheres containing less than 21% oxygen by volume. All of these conditions must be met before attempting to operate the heater.

WARNING

NEVER operate the heater in an atmosphere with an ignition temperature lower than the heater marking.

WARNING

Potentially lethal voltages are present. Be sure to lock the branch circuit disconnect switch in the off position and tag the circuit "Out for Maintenance" before working on this equipment.

WARNING

Replacement of electrical components should only be done by authorized personnel familiar with the requirements of maintaining electrical equipment in an explosion-hazard area.

WARNING

Replacement electrical components must be obtained from the factory to maintain the hazardous location rating.

15. To operate the heater, make sure all enclosure covers are closed securely, all associated control equipment is on, energize main supply disconnect and if a thermostat is controlling the heater, set it above the ambient temperature. If the heater is provided with a selector switch, it must be in the on position.
16. The heater is equipped with two temperature limit controls. If a heater with a manual reset cutout fails to operate, make sure the manual reset cutout is operative by pushing the reset button.
17. The heater is equipped with a built-in time delay relay for the fan. When the heater is switched off either by the thermostat or the selector switch, the fan will remain in operation for about a minute to cool the elements.
18. During normal operation, the limit controls are not supposed to cycle the heater "On" and "Off." If frequent tripping of the limit controls occur, check to see if the inlet or the outlet of the heater is blocked in some way. If no obstruction is visible, the heater has to be examined by qualified service personnel only, to determine the cause of nuisance tripping.
19. The heater can be washed down with water, only if the nameplate on the heater shows that is rated for "NEMA 4 Locations." On the heaters rated for all other locations, compressed air can be used.
20. The fan motor on the heater is lubricated for life and does not require any periodic maintenance
21. If reduced heat output is suspected verify the condition of the heating elements by using an ammeter to check the current draw of each input line. All input lines should draw approximately equal current which should agree with nameplate rating. If they do not, one or more of the heating elements could be burned out.
22. Annually Check the terminal enclosure, and conduit connections for evidence of water leaks or moisture collection. Tighten connections and check covers as required.
23. The explosion-proof control box is designed with threaded joints and metal-to-metal contact at the cover joint to prevent an explosion. Do not attempt to install gasket material of any type at these joints.
24. Annually check the tightness of all mounting bolts and nuts.
25. Annually check elements for dirt build up or corrosion, and clean as required. Report signs of overheating or corrosion to the factory.

[Keep these instructions for future reference.](#)

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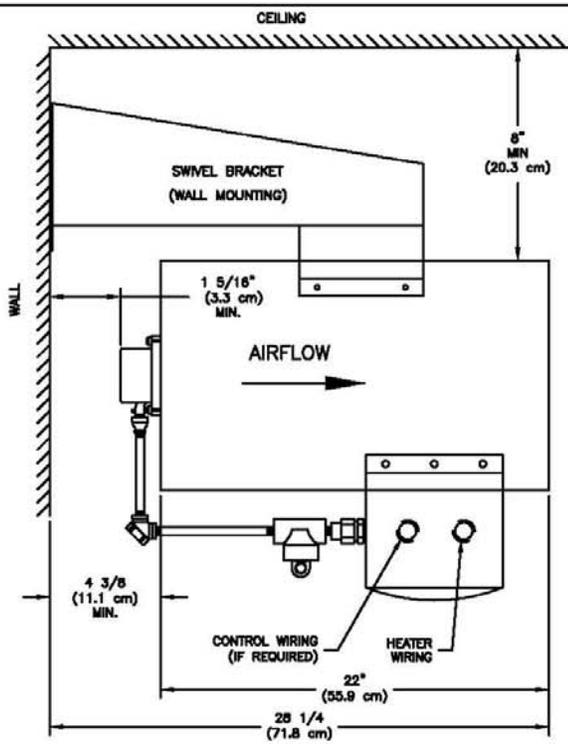


Figure 1

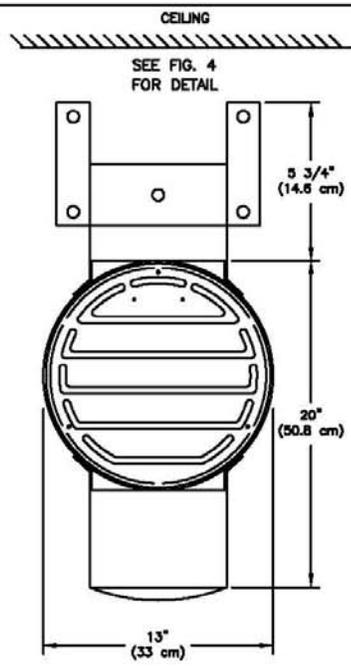


Figure 2

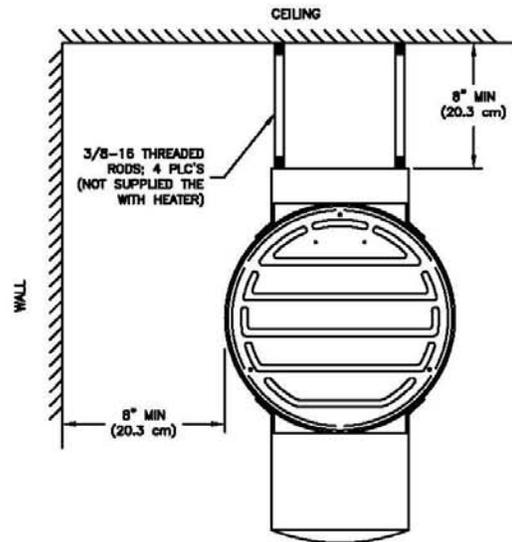


Figure 3
Optional Ceiling Installation
with 4 Threaded Rods

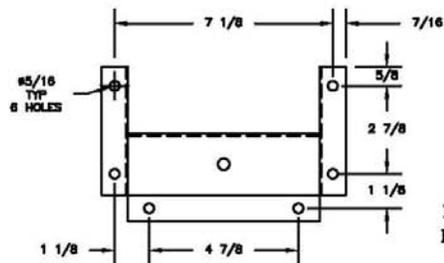


Figure 4
Mounting Hole Detail
Rear View of Bracket

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236 HEATERS