

to prevent loosening. For stems longer than 300 mm (12 in.), permanent and effective bracing against lateral displacement shall be provided at a level not more than 300 mm (12 in.) above the lower end of the stem, or flexibility in the form of a fitting or flexible connector identified for the Class I, Division 1 location shall be provided not more than 300 mm (12 in.) from the point of attachment to the supporting box or fitting.

**(4) Supports.** Boxes, box assemblies, or fittings used for the support of luminaires shall be identified for Class I locations.

**(B) Class I, Division 2.** In Class I, Division 2 locations, luminaires shall comply with 501.130(B)(1) through (B)(6).

**(1) Luminaires.** Where lamps are of a size or type that may, under normal operating conditions, reach surface temperatures exceeding 80 percent of the autoignition temperature in degrees Celsius of the gas or vapor involved, luminaires shall comply with 501.130(A)(1) or shall be of a type that has been tested in order to determine the marked operating temperature or temperature class (T code).

**(2) Physical Damage.** Luminaires shall be protected from physical damage by suitable guards or by location. Where there is danger that falling sparks or hot metal from lamps or luminaires might ignite localized concentrations of flammable vapors or gases, suitable enclosures or other effective protective means shall be provided.

**(3) Pendant Luminaires.** Pendant luminaires shall be suspended by threaded rigid metal conduit stems, threaded steel intermediate metal conduit stems, or other approved means. For rigid stems longer than 300 mm (12 in.), permanent and effective bracing against lateral displacement shall be provided at a level not more than 300 mm (12 in.) above the lower end of the stem, or flexibility in the form of an identified fitting or flexible connector shall be provided not more than 300 mm (12 in.) from the point of attachment to the supporting box or fitting.

Δ **(4) Portable Lighting Equipment.** Portable lighting equipment shall comply with 501.130(B)(4)(a) or (B)(4)(b).

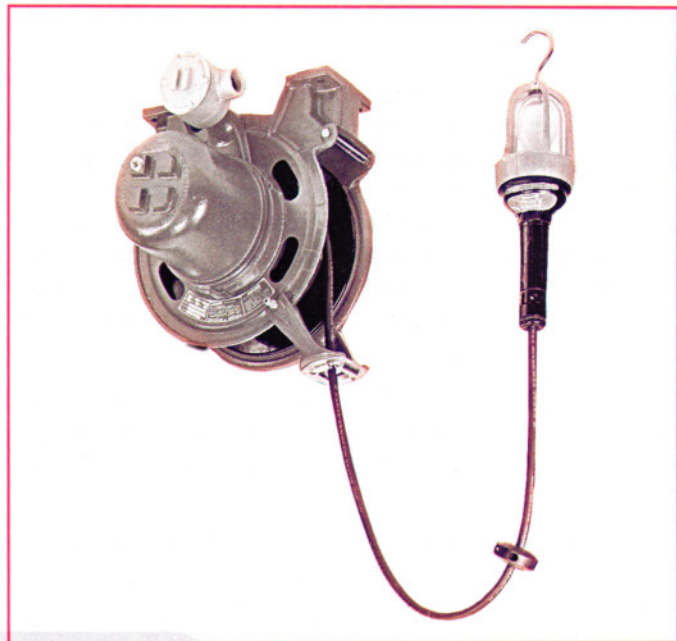
(a) Portable lighting equipment shall comply with 501.130(B)(1).

(b) Portable lighting equipment mounted on movable stands and connected by flexible cords in accordance with 501.140 shall be permitted to comply with 501.130(B)(1), where mounted in any position, if it is protected from physical damage in accordance with 501.130(B)(2).

**(5) Switches.** Switches that are a part of a luminaire or of an individual lampholder shall comply with 501.115(B)(1).

**(6) Starting Equipment.** Starting and control equipment for electric-discharge lamps shall comply with 501.120(B).

*Exception: A thermal protector potted into a thermally protected fluorescent lamp ballast if the luminaire is identified for the location.*



**EXHIBIT 501.12** An explosionproof hand lamp for use in Class I locations. (Courtesy of Appleton™, Emerson Electric Co.)

Operating temperatures must be considered if the area is a Class I location. Luminaires must be identified for this location and properly marked. Generally, enclosed and gasketed luminaires — without guards, if breakage is unlikely — or luminaires identified for Class I, Division 2 locations are required in Division 2 locations.

Portable luminaires are required to be specifically listed as a complete assembly for use in Class 1, Division 1 or 2 locations. Exhibit 501.12 shows an explosionproof hand lamp. Lamp compartments must be sealed from the terminal compartment. Provisions must be made for the connection of 3-conductor (one must be a grounding conductor) flexible, extra-hard-usage cord in accordance with 501.140(A)(1).

### 501.135 Utilization Equipment.

**(A) Class I, Division 1.** In Class I, Division 1 locations, all utilization equipment shall be identified for Class I, Division 1 locations.

**(B) Class I, Division 2.** In Class I, Division 2 locations, all utilization equipment shall comply with 501.135(B)(1) through (B)(4).

Δ **(1) Heaters.** Electrically heated utilization equipment shall meet one of the following requirements:

- (1) The heater shall not exceed 80 percent of the autoignition temperature in degrees Celsius of the gas or vapor involved on any surface that is exposed to the gas or vapor when continuously energized at the maximum rated ambient temperature. If a temperature controller is not provided, these conditions shall apply when the heater is operated at 120 percent of rated voltage.