

HAZARDOUS LOCATIONS EQUIPMENT DIRECTORY 2012

This Directory contains all Listings and Classifications in effect as of March 28, 2012 for product categories covered.

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HAZARDOUS LOCATIONS EQUIPMENT DIRECTORY

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 Multiple Listing, Recognition or Classification Service

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Introduction

This Directory contains the names of companies authorized to use the UL Mark on or in connection with products that have been investigated by UL and found to be in compliance with UL's requirements. These companies, as well as the manufacturers and submitters of the products, have entered into an Agreement with UL to use the UL Mark only on or in connection with products manufactured in compliance with UL's requirements. It should be noted that UL certified products of different makes or model designations are not necessarily equivalent in quality or performance.

The appearance of catalog or model numbers or other specific product designations in this Directory signifies that: (1) representative samples of these products have been submitted to UL and found to comply with the applicable requirements, and that (2) the manufacturer has been authorized to use the appropriate UL Mark on production that continues to comply with UL's requirements and is subject to UL's Follow-Up Service. Since manufacturers are not obligated to apply the UL Mark on all of their production, products that do not bear the UL Mark are not required by UL to comply with UL's requirements. Accordingly, the appearance of a company's name or a specific product designation in this Directory does **not** in itself ensure that products so specified or identified are subject to UL's Follow-Up Service. The manufacturer's products are not subject to UL's Follow-Up Service unless they bear the UL Mark. **Only those products bearing the appropriate UL Mark and the company's name, trade name, trademark or other authorized identification should be considered as being covered by UL's Listing or Classification and Follow-Up Service. The UL Mark provides evidence of listing or labeling, which may be required by installation codes or standards.**

Many of the products bearing the UL Mark incorporate components that bear the UL Recognized Component Mark . The Recognized Component Mark is applicable to components that are incomplete in construction features or limited in performance capabilities. **The Recognized Component Mark does not provide evidence of listing or labeling, which may be required by installation codes or standards.**

This Directory contains Listings and Classifications in effect as of March 28, 2012. Records of Listings and Classifications issued or withdrawn after this date will be found in UL's Listing Information database. In addition, Listings and Classifications issued after the effective date will be found in UL's Online Certifications Directory at www.ul.com/database and will appear in the next annual Directory.

Note: At the back of this Directory is important information about UL services for manufacturers and other clients, Authorities Having Jurisdiction, and consumers.

Installation and Use of Products Bearing the UL Mark

Authorities Having Jurisdiction should be consulted as to the particular requirements covering the installation and use of UL Listed or Classified products, equipment, systems, devices and materials.

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

Use of this Directory

This Directory includes the following:

- General Guide Information for each product category that includes references to the requirements used for the investigation of the products and the UL Mark to be used on the product;
- Information relating to limitations or special conditions applying to the product;
- Names of companies that are authorized to provide products bearing the UL Mark.

The companies whose names appear in this Directory may not be the manufacturer of the product, but are qualified to provide products that bear the UL Mark.

UL Listings and Classifications are arranged alphabetically in this Directory by product category and alphabetically by company name under each category. The four-letter code (shown in parentheses) following each category title is the product category guide designation.

Under individual product categories, each company is assigned an alphanumeric file number (starting with letters such as AU, BP, E, EX, MH, MP, MQ, R, S or SA). This number may not be required to be marked on the product. The file number can be used to identify a particular company and the associated product category.

To assist in the use of the Directory, an Index of Product Categories, an Index of Companies and a List of Company Identifications are provided (see Table of Contents). The List of Company Identifications contains the trade names or trademarks of companies that have chosen to use such identification in place of or in addition to their company name.

UL's General Guide Information at the beginning of each product category provides important information regarding the scope and limitation of UL's certification of the product and a general description of the UL Marks authorized for products in that category.

This information may include the identification of published standards that have been used to investigate products in that category. There may not be a published standard against which a product can be tested and evaluated to determine its acceptability for the UL Mark. If no applicable standard is available, UL will exercise its judgment in the selection of applicable requirements from standards and other sources and will develop requirements to cover uses and conditions for which specific requirements did not previously exist.

The scope of each UL Standard for Safety and Outline of Investigation can be accessed at <http://ulstandardsinfo.net.ul.com>.

The information in the individual Listing or Classification varies from category to category depending on the needs of the users of the Directory. Certain Listings or Classifications contain specific model or catalog designations, others contain general types of products, and others include the company name only.

For some product categories, UL's Online Certifications Directory may include additional product information that does not appear in this Directory. To obtain additional information for a particular Listing or Classification or information on UL Listed and Classified products and Recognized Components, contact the Customer Experience Center by telephone: +1.877.UL.HELPS (1.877.854.3577) or e-mail at cec.us@us.ul.com.

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Look for the UL Mark

Identification of UL Listed and Classified Products

The symbol  and the name "Underwriters Laboratories Inc." in various forms and abbreviations are registered with the U.S. Patent and Trademark Office, and in numerous other countries. Subject to the terms of UL's Follow-Up Service Agreement, companies are permitted to use the symbol  or other specified forms of UL's name as part of the UL Mark on products that are Listed or Classified and that comply with UL's requirements.

The product name as indicated in the General Guide Information for each product category is generally included as part of the UL Mark, but may be omitted when, in UL's opinion, the use of the name is unnecessary and the UL Mark is directly and permanently applied to the product by stamping, molding, ink-stamping, silk screening or similar processes.

A separable UL Mark (not part of a nameplate and in the form of decals, stickers or labels) will always include the following four elements: UL's symbol , the word "LISTED" or "CLASSIFIED," the product or category name, and a control number assigned by UL.

The complete UL Mark will appear on the product unless otherwise indicated in the General Guide Information for a specific product category.

When a UL Listed product is of such a size, shape, material or surface texture that, in UL's opinion, it is impossible to apply legibly the complete marking to the product, the complete UL Listing Mark will appear on the smallest unit container in which the product is packaged. In these cases UL may authorize the use of the UL symbol  on the product in addition to the complete UL Mark on the package.

When a UL Classified product is of such a size, shape, material or surface texture that, in UL's opinion, it is impossible to apply legibly the complete marking to the product, the complete UL Classification Mark will appear on the smallest unit container in which the product is packaged. In these cases there shall be no reference to UL on the product.

Refer to the General Guide Information for each product category for additional information on the specific UL Mark for the products in the category.

Identification of UL Listed Products

The UL Listing Mark generally includes the UL symbol or it may include other registered forms as authorized by UL. The UL Listing Mark includes: (1) the UL symbol shown below; (2) the word "LISTED" ; (3) the product identity; and (4) a control number assigned by UL.



Identification of UL Listed Gas-Fired Products

The UL Listing Mark for gas-fired products certified to UL Standards includes: (1) the UL symbol with the words "GAS-FIRED" above the UL symbol as shown below; (2) the word "LISTED" below the UL symbol; (3) the product identity; and (4) a control number assigned by UL.

GAS-FIRED



LISTED

The UL Listing Mark for gas-fired products certified to ANSI Z21 or Z83 Series Standards includes: (1) the UL symbol with the words "GAS-FIRED" above the UL symbol as shown below; (2) the word "LISTED" below the UL symbol; (3) the ANSI/CSA or ANSI/CGA Standard designation; and (4) a control number assigned by UL.

GAS-FIRED



LISTED

[identification of standard]

Identification of UL Listed Environmental and Public Health (EPH) Products

The UL Listing Mark for Environmental and Public Health (EPH) products certified to UL Standards includes: (1) the UL symbol with the letters EPH inside a triangular background as shown below; (2) the word “LISTED” below the UL symbol; (3) the product identity; and (4) a control number assigned by UL.



The UL Listing Mark for Environmental and Public Health (EPH) products certified to standards of other organizations for foreseeable hazards includes: (1) the UL symbol with the letters EPH inside a triangular background as shown below; (2) the word “LISTED” below the UL symbol; (3) the product identity; (4) the standard designation; and (5) a control number assigned by UL.



[identification of standard]

Identification of UL Classified Products

The UL Classification Mark may appear in various forms as authorized by UL. The UL Classification Mark includes: (1) the UL symbol; (2) the word “CLASSIFIED” above the UL symbol; (3) the product identity; (4) a control number assigned by UL; and (5) indication of the extent of UL’s evaluation of the product, e.g. “AS TO [nature of hazard] ONLY” ; rating or classification as specified in the General Guide Information pertaining to the product category; “IN ACCORDANCE WITH [designation and title of standard published by other organization]” ; or “FOR USE WITH [identification of specified product].” A typical Classification Mark is shown below:



AS TO [nature of hazard] ONLY
or
IN ACCORDANCE WITH
[identification of standard]

Identification of UL Classified Environmental and Public Health (EPH) Products

The UL Classification Mark for Environmental and Public Health (EPH) products certified to standards of other organizations for EPH evaluations only includes: (1) the UL symbol with the letters EPH inside a triangular background, as shown below; (2) the word “CLASSIFIED” above the UL symbol; (3) the product identity; (4) the standard designation; and (5) a control number assigned by UL.



[identification of standard]

Additional information regarding the UL Marks for Environmental and Public Health (EPH) can be found at the back of this directory under **Other UL Services** and online at www.ul.com/eph.

Identification of UL Listed Products that are Also Classified in Accordance with International or Regional Standards

The UL Listing Mark and Classification Mark shown above can be combined for products that not only meet the applicable UL requirements but also comply with the requirements of the applicable international or regional standards. For these products the combination UL Listing and Classification Mark is shown below:



**ALSO CLASSIFIED
IN ACCORDANCE WITH
[identification of standard]**

Identification of Products Classified in Accordance with International or Regional Standards Only

UL provides a service for the Classification of products that have been determined to comply with the appropriate requirements of the applicable international or regional standards only. For these products, the Classification Mark may appear in various forms as authorized by UL. A typical form which may be authorized is shown below. When the complete Classification Mark cannot be applied to the product, no reference to UL on the product is permitted.



**[product identity]
IN ACCORDANCE WITH
[identification of standard]**

Products Listed by Report

Certain products are Listed under a special service designated as "Listed by Report." These are usually products or constructions for which there are no generally recognized installation requirements. The description of this type of product or construction and information concerning proper field assembly and/or installation are contained in a Report identified by the reference and date shown by the Listing. Products Listed by Report are eligible to bear a UL Mark, which includes a reference to the Report number and date. Copies of the Report may be obtained upon application to the company whose product is Listed.

Specifying UL Listed and Classified Products

Specifying UL Listed and Classified products up front is one of the best methods used by designers, consultants, insurers and others to help gain jurisdictional acceptance. A typical specification reads: "The [product] must bear the UL Mark." Or, if the specification cannot be that precise, an alternate wording would read: "The [product] must meet the requirements of UL. The UL Mark on the product will be accepted as evidence of compliance."

Products, equipment and materials evaluated by UL in accordance with international or regional standards only are intended for installation and use where the specified standards have been adopted.

2012 HAZARDOUS LOCATIONS EQUIPMENT DIRECTORY

PART I

Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ)

GENERAL

Electrical equipment for use in and relating to Class I, II and III, Division 1 and 2 hazardous (classified) locations has been investigated with reference to risk to life and property and for potential conformity to the installation and use provisions of ANSI/NFPA 70, "National Electrical Code" (NEC), or United States Coast Guard (USCG) Electrical Engineering Regulations 46CFR110, "General Provisions," 46CFR111, "Electric Systems – General Requirements," 46CFR112, "Emergency Lighting and Power Systems," and 46CFR113, "Communication and Alarm Systems and Equipment." Those products investigated for conformity to the installation and use provisions of the USCG Regulations are identified in the general Guide Information for each product category or the individual Listings for the product. Attention is called to the limitations of the individual Listings and Classifications specified in the general Guide Information for each product category, such as current, voltage, horsepower limits, markings, special descriptions and installation provisions.

Unless equipment is identified in 1) the product category title as relating to hazardous (classified) locations or 2) the individual Listings as apparatus for use in unclassified locations, all product categories contain electrical equipment for use in Class I, II and III hazardous (classified) locations.

Regarding electrical equipment for use in and relating to Zone classified locations, some general technical information is provided together with the specific technical information provided regarding Division classified locations. For additional specific technical information regarding Zone classified locations, see Equipment for Use in and Relating to Zone Classified Hazardous Locations (AANZ).

Electrical equipment for use in and relating to hazardous (classified) locations must also comply with the applicable requirements for the same type of equipment for use in unclassified locations. For additional information, see Electrical Equipment for Use in Ordinary Locations (AALZ).

HAZARDOUS (CLASSIFIED) LOCATIONS — GENERAL INFORMATION

Hazardous (classified) locations, as defined in the NEC, are locations where fire or explosion hazards may exist due to the presence of flammable gases, vapors or flammable liquids, combustible dusts, or ignitable fibers or flyings.

There are two independent classification systems. One system, found in Article 500 of the NEC, divides all hazardous (classified) locations into Classes, Divisions and Groups. A Division 1 location is a location where an ignitable concentration of a flammable or combustible material is present under normal operating conditions. A Division 2 location is a location where an ignitable concentration of a flammable or combustible material is present only under abnormal operating conditions.

The other classification system is found in Articles 505 and 506 of the NEC:

Article 505 divides locations having gases and vapors into Class I, Zones and Gas Groups. A Zone 0 location is a location where ignitable concentrations are present continuously or for long period of time. A Zone 1 location is a location where ignitable concentrations are likely to exist under normal operating conditions. A Zone 2 location is a location where ignitable concentrations are not likely to occur in normal operation and, if they do occur, will only persist for a short period.

Article 506 divides locations having dusts, fibers or flyings into Zones. A Zone 20 location is a location where ignitable concentrations are present continuously or for long periods of time. A Zone 21 location is a location where ignitable concentrations are likely to exist under normal operating conditions. A Zone 22 location is a location where ignitable concentrations are not likely to occur in normal operation and, if they do occur, will only persist for a short period.

Protection against explosion in hazardous (classified) locations requires that all equipment that could be exposed to the flammable or combustible atmospheres be of a type suitable for installation in such locations. The Classes and Groups for which equipment has been Listed or Classified are shown in the individual Listings and Classifications under the respective categories and are marked on the equipment itself. In addition, intrinsically safe circuit-wiring terminals and intrinsically safe equipment is marked "Intrinsically Safe."

Gas, Vapor and Dust Groups

The following paragraphs group flammable and explosive mixtures of specific gases, vapors and dusts in accordance with the NEC classifications noted in Article 500. For a complete list of group classifications for Class I and II materials where used within Divisions 1 or 2, see ANSI/NFPA 497, "Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical Installations in

Chemical Process Areas,” and ANSI/NFPA 499, “Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas.”

Class I Equipment

Equipment for use in Class I hazardous (classified) locations, as defined in the NEC, is tested with respect to acceptability of operation in the presence of flammable and explosive mixtures of specific vapors and gases with air. For purposes of location classification for Divisions 1 and 2, such mixtures have been grouped on the basis of their characteristics as follows:

Class I, Group A — Atmospheres containing acetylene.

Class I, Group B — Atmospheres containing gases or vapors having either a maximum experimental safe gap (MESG) less than or equal to 0.45 mm or a minimum igniting current ratio (MIC ratio) less than or equal to 0.40. Examples of Group B materials are acrolein, butadiene, ethylene oxide, propylene oxide, hydrogen, and fuel and combustible process gases containing more than 30% hydrogen by volume.

Class I, Group C — Atmospheres containing gases or vapors having either a maximum experimental safe gap (MESG) greater than 0.45 mm and less than or equal to 0.75 mm, or a minimum igniting current ratio (MIC ratio) greater than 0.40 and less than or equal to 0.80. Examples of Group C materials are ethyl ether and ethylene.

Class I, Group D — Atmospheres containing gases or vapors having either a maximum experimental safe gap (MESG) greater than 0.75 mm or a minimum igniting current ratio (MIC ratio) greater than 0.80. Examples of Group D materials are acetone, ammonia, benzene, butane, cyclopropane, ethanol, gasoline, hexane, methane, methanol, naphtha and propane.

Equipment for use in Class I, Zone 0, 1 and 2 hazardous (classified) locations, as defined in Article 505 of the NEC, is tested with respect to acceptability of operation in the presence of flammable and explosive mixtures of specific vapors and gases with air. For purposes of location classification, such mixtures have been grouped on the basis of their characteristics as follows:

Class I, Group IIC — Atmospheres containing hydrogen, acetylene, or gases or vapors having either a maximum experimental safe gap (MESG) less than or equal to 0.50 mm or a minimum igniting current ratio (MIC ratio) less than or equal to 0.45.

Class I, Group IIB — Atmospheres containing acetaldehyde, ethylene, or gases or vapors having either a maximum experimental safe gap (MESG) greater than 0.50 mm and less than or equal to 0.90 mm, or a minimum igniting current ratio (MIC ratio) greater than 0.45 and less than or equal to 0.80.

Class I, Group IIA — Atmospheres containing acetone, ammonia, ethyl alcohol, gasoline, methane, propane, or gases or vapors having either a maximum experimental safe gap (MESG) greater than 0.90 mm or a minimum igniting current ratio (MIC ratio) greater than 0.80.

The following table compares Class I, Division 1 and 2 Gas Groups with Class I, Zone 0, 1 and 2 Gas Groups. The gases shown are representative of others in the Group.

Division 1 and 2

A (acetylene)
B (hydrogen)
C (ethylene)
D (propane)

Zone 0, 1 and 2

IIC (acetylene and hydrogen)
IIC (acetylene and hydrogen)
IIB (ethylene)
IIA (propane)

Class I Equipment in Class II and III Locations

Equipment Listed or Classified for use in Class I locations is not necessarily acceptable for Class II or III locations as it may not be dust-tight or operate at a safe temperature when blanketed with dust, fibers or flyings.

Class II Equipment

Equipment for use in Class II hazardous (classified) locations, as defined in the NEC, is tested with respect to acceptability of operation in the presence of combustible dusts in air. For purposes of location classification, the NEC groups combustible dust-air mixtures as follows:

Class II, Group E — Atmospheres containing combustible metal dusts, including aluminum, magnesium, and their commercial alloys, or other combustible dusts whose particle size, abrasiveness, and conductivity present an equivalent hazard.

Class II, Group F — Atmospheres containing carbon black, charcoal, coal or coke dusts which have more than 8% total volatile material, or atmospheres containing these dusts sensitized by other materials so that they present an explosion hazard.



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Class II, Group G — Atmospheres containing combustible dusts not included in Group E or F, including flour, grain, wood, plastic and chemicals.

There are no dust groups for Zone 20, 21 or 22. In addition, Article 506 of the NEC does not cover locations where metal dusts are present.

Class II Equipment in Class III Locations

Equipment Listed or Classified for Class II, Group G hazardous (classified) locations is also suitable for use in Class III locations, except for 1) those products marked for Division 2 only, and 2) fan-cooled-type motors where there is a very large amount of lint or combustible flyings that are likely to choke or clog the air passages of the motor.

Class III Equipment

Equipment for use in Class III hazardous (classified) locations, as defined in the NEC, is tested with respect to acceptability of operation in the presence of easily ignitable fibers or flyings. These fibers or flyings are not likely to be in suspension in the air in quantities sufficient to produce ignitable mixtures.

There are no groups for fibers and flyings for Class III or for Zone 20, 21 or 22.

Intrinsically Safe Circuits and Apparatus, and Associated Apparatus

Intrinsically safe circuits and apparatus may be investigated for any or all of the Classes and Groups as defined in the NEC. In an intrinsically safe circuit, the energy level available in the hazardous (classified) location under normal and abnormal conditions is sufficiently low as not to cause ignition of the specified explosive atmospheres. It is important that intrinsically safe apparatus for locations containing metal dusts be constructed to exclude dust in order to maintain the energy limitations by minimizing the possibility of circuit faults. To maintain the low energy levels, it is necessary that the intrinsically safe and associated apparatus be installed and interconnected in accordance with Article 504 of the NEC and the instructions provided with the equipment.

Associated apparatus is apparatus in which the circuits are not necessarily intrinsically safe, but which affect the energy in the intrinsically safe circuits and are relied upon to maintain intrinsic safety. Associated apparatus is not intended for use in hazardous (classified) locations unless use in hazardous (classified) locations is specifically indicated.

When interconnecting associated apparatus with equipment for use in the hazardous (classified) location, special attention should be paid to installation instructions, control drawings, or product markings which may limit the types of connections that are acceptable.

Equipment Relating to Hazardous (Classified) Locations

Equipment relating to hazardous (classified) locations includes 1) devices, products and materials for use in locations where it is necessary for safety to avoid the accumulation of static electricity on personnel or equipment, 2) anesthesia equipment, 3) devices not intended for operation in hazardous (classified) locations, but which are designed to indicate certain potentially dangerous conditions with respect to such locations, 4) electrical equipment not intended for installation in hazardous (classified) locations except for provision of certain intrinsically safe (low energy) circuit extensions as indicated in the individual Listings and Classifications, and 5) paint spray booths.

Suitability of Listed or Classified Equipment

Equipment intended for use in a hazardous (classified) location Class and Group and marked "Division 1" (or "Div. 1") or without any Division indication is suitable for use in both Division 1 and 2 locations as defined in the NEC, and in unclassified locations. Equipment marked "Division 2" (or "Div. 2") is suitable only for Division 2 and unclassified locations.

The NEC also permits the following:

- Intrinsically safe equipment for Class I, Division 1 locations to be used in a Class I, Zone 0, 1 or 2 location of the same gas and with a suitable temperature class.
- Equipment (other than intrinsically safe equipment) for Class I, Division 1 locations to be used in a Class I, Zone 1 or 2 location of the same gas and with a suitable temperature class.
- Equipment for Class I, Division 2 locations to be used in a Class I, Zone 2 location of the same gas and with a suitable temperature class.
- Equipment for Class I, Zone 0 locations to be used in a Class I, Division 1 or 2 location of the same gas and with a suitable temperature class.
- Equipment for Class I, Zone 0, 1 or 2 locations to be used in a Class I, Division 2 location of the same gas and with a suitable temperature class.
- Equipment for Class II, Division 1 locations to be used in a Zone 20, 21 or 22 location with a suitable temperature class.
- Equipment for Class II, Division 2 locations to be used in a Zone 22 location with a suitable temperature class.
- Equipment for Zone 20 locations to be used in a Class II, Division 1 location of the same dust and with a suitable temperature class.

- Equipment for Zone 20, 21 or 22 locations to be used in a Class II, Division 2 location of the same dust and with a suitable temperature class.
- Equipment for Zone 20 locations with a temperature class of not greater than T120C for equipment subject to overloading or not greater than T165C for equipment not subject to overloading to be used in a Class III, Division 1 location.
- Equipment for Zone 20, 21 or 22 locations with a temperature class of not greater than T120C for equipment subject to overloading or not greater than T165C for equipment not subject to overloading to be used in a Class III, Division 2 location.

In addition, equipment for use in hazardous (classified) locations is also suitable for use in unclassified locations.

RELATED EQUIPMENT

For additional information on electrical equipment for use in and relating to Zone classified locations, see Equipment for Use in and Relating to Zone Classified Hazardous Locations (AANZ).

For additional information on electrical equipment for use in unclassified locations, see Electrical Equipment for Use in Ordinary Locations (AALZ).

TEMPERATURE CONSIDERATIONS

The marked temperature class (T-code) of the equipment is based on either the maximum external temperature or internal temperature of the equipment, depending on the protection technique used.

Equipment is required to be marked with the operating temperature or temperature class (T-code) if the maximum operating temperature is more than 100°C (212°F). The marking specifies the temperature class or operating temperature based on a +40°C (+104°F) ambient temperature, or based on the higher ambient temperature if the equipment is rated and marked for an ambient temperature of greater than +40°C (+104°F). For equipment rated and marked for an upper ambient temperature of less than +40°C (+104°F), the operating temperature or temperature class is still based on +40°C (+104°F).

For Class I and II locations, this temperature marking should not exceed the ignition temperature of the specific combustible material to be encountered. For organic dusts that may dehydrate or carbonize, the temperature marking should not exceed the lower of either the ignition temperature or 165°C.

For Class III locations, the maximum permitted temperature is 120°C for equipment that is subject to overloading (such as motors) and 165°C for equipment that is not subject to overloading.

AMBIENT TEMPERATURES

Unless the equipment is marked otherwise, it has been investigated only for use under normal atmospheric conditions in an ambient temperature within the range of -25°C (-13°F) to +40°C (+104°F). Equipment may be investigated and marked for a lower ambient temperature that is greater than -25°C (-13°F). While equipment may be marked for an upper ambient temperature that is less +40°C (+104°F), equipment is always investigated for an upper ambient temperature of at least +40°C (+104°F).

Use of equipment under conditions of higher than normal atmospheric pressure or oxygen partial pressure, use in artificial atmospheres, and use under conditions of excessively high ambient temperatures can increase the likelihood of ignition of flammable atmospheres. In addition, low ambient temperatures may increase explosion pressures developed within explosion-proof equipment.

ENCLOSURE MODIFICATION AND MAINTENANCE

The integrity of an enclosure for explosion-proof or dust-ignition-proof equipment must be maintained. Making holes (other than conduit openings specified in the instructions) or alterations in the enclosure during installation may compromise the ability of the enclosure to contain the explosion or to exclude dust. Holding bolts and threaded parts must be screwed tight. The continued acceptability of the equipment will depend upon proper maintenance.

ENVIRONMENTAL CONSIDERATIONS

Unless the equipment is marked otherwise, it is intended to be used indoors where severe corrosive conditions are not likely to be present. Equipment investigated for severe environmental conditions is marked with an enclosure type designation or other designation indicating the suitability of the equipment in different environments. See **ENCLOSURE CONSIDERATIONS FOR ALL EQUIPMENT** below for more information.

ENCLOSURE CONSIDERATIONS FOR ALL EQUIPMENT

Section 110.11 of the NEC directs that equipment shall not be used in damp or wet locations; locations where exposed to gases, fumes, vapors, liquids or other agents having a deteriorating effect on the equipment; or locations where exposed to excessive temperatures unless the equipment is identified for use in such environments. Section 300.6 of the NEC provides guidance regarding protection against corrosion. To assist Authorities Having Jurisdiction, electrical equipment Listed or Classified for use in and relating to hazardous (classified) locations may be investigated

for use in certain operating environments and marked with an enclosure type number or numbers. The following table summarizes the intended uses of the various enclosure types.

Provides a Degree of Protection Against the Following Environmental Conditions:	1	2	3	3R	3S	3X	3RX	3SX	Type of Enclosure 4	4X	5	6	6P	12	12K	13
Incidental contact with the enclosed equipment	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Falling dirt	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Dripping and light splashing of noncorrosive liquids	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Rain, snow and sleet	—	—	X	X	X	X	X	X	X	X	—	X	X	—	—	—
Rain, snow and sleet (external mechanism shall be operable when ice covered)	—	—	—	—	X	—	—	X	—	—	—	—	—	—	—	—
Circulating dust, lint, fibers and flyings	—	—	X	—	X	X	—	X	X	X	—	X	X	X	X	X
Settling airborne dust, lint, fibers and flyings	—	—	X	—	X	X	—	X	X	X	X	X	X	X	X	X
Windblown dust	—	—	X	—	X	X	—	X	X	X	—	X	X	—	—	—
Hosedown and splashing water	—	—	—	—	—	—	—	—	X	X	—	X	X	—	—	—
Oil and coolant seepage	—	—	—	—	—	—	—	—	—	—	—	—	—	X	X	X
Oil or coolant spraying and splashing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	X
Corrosive agents	—	—	—	—	—	X	X	X	—	X	—	—	X	—	—	—
Occasional temporary submersion	—	—	—	—	—	—	—	—	—	—	—	X	X	—	—	—
Occasional prolonged submersion	—	—	—	—	—	—	—	—	—	—	—	—	X	—	—	—

In addition to the above enclosure types that provide a degree of protection against environmental conditions other than explosive atmospheres, there are two additional enclosure-type numbers: 7 (Class I, Division 1, Groups A, B, C and D involving air-break equipment) and 9 (Class II, Division 1, Groups E, F and G involving air-break equipment). These two additional enclosure types provide a degree of protection against explosive atmospheres. The marking of enclosure-type numbers 7 and 9 is optional, as the marking of Class and Group is required. The marking of Division 1 is optional for equipment suitable for Divisions 1 and 2.

Enclosures for indoor locations include Types 1, 2, 5, 7, 9, 12, 12K and 13; enclosures for indoor or outdoor locations include Types 3, 3R, 3S, 4, 4X, 6 and 6P.

In some cases, individual appliances and equipment may be marked “Raintight” or “Rainproof” indicating that they have been subjected to a test designed to simulate exposure to beating rain. For equipment designated as



“Raintight” such exposure will not result in entrance of water. For equipment designated as “Rainproof” such exposure will not interfere with the operation of the apparatus or result in wetting of live parts and wiring within the enclosure.

Additionally or alternatively, IEC 60529, “Degrees of Protection Provided by Enclosures (IP Code),” describes a system for classifying the degrees of ingress protection (or IP Code) provided by the enclosures of electrical equipment as follows:

First Characteristic Numeral	• Degrees of Protection Against Ingress of Solid Foreign Objects	Second Characteristic Numeral	Degrees of Protection Against Ingress of Water Harmful Effects
	• Degrees of Protection Against Access to Hazardous Parts		
IP0X	• Nonprotected	IPX0	Nonprotected
IP1X	• Nonprotected	IPX1	Vertically dripping
IP2X	• 50 mm diameter and greater	IPX2	Dripping (15 degrees tilted)
IP3X	• Back of hand	IPX3	Spraying
IP4X	• 12.5 mm diameter and greater	IPX4	Splashing
IP5X	• Finger	IPX5	Jetting
IP6X	• 2.5 mm diameter and greater	IPX6	Powerful jetting
	• Tool	IPX7	Temporary immersion
	• 1.0 mm diameter and greater	IPX8	Continuous immersion
	• Wire		
	• Dust-protected		
	• Wire		
	• Dust-tight		
	• Wire		

FITTINGS AT SUPPLY ENTRIES

Consideration should be given to the Type or IP rating of fittings used at supply entries. When the manufacturer supplies a fitting with the enclosure, enclosures are to be connected to the wiring system using the fitting provided. If no fitting is provided by the manufacturer, the fitting employed must meet or exceed the Type or IP rating of the enclosure, so that the assembly maintains its protection against contaminants.

CABLE AND CONDUIT SEALS

Equipment with a factory-installed conduit seal is marked “Leads factory sealed,” or equivalent wording. The absence of this marking indicates that the need for a field-installed seal in accordance with Section 501.15 or 502.15 of the NEC should be determined.

PROCESS SEALS

Process-connected electrical equipment provided with seals to prevent the migration of process fluids into the electrical system are either the single-seal or dual-seal types. The construction, testing and marking requirements for process seals are found in ANSI/ISA-12.27.01, “Requirements for Process Sealing Between Electrical Systems and Flammable or Combustible Process Fluids.”

WIRING METHODS

Wiring methods permitted by the NEC for hazardous (classified) locations are, in general, more restrictive than those permitted for unclassified locations. Extra-hard-usage flexible cord is only permitted for connection of portable luminaires and other types of portable utilization equipment and the fixed portion of their supply circuit, or in other situations where flexibility is necessary for the installation as determined by the Authority Having Jurisdiction.

REQUIREMENTS

The standards used to investigate these products address the risk of explosion associated with installation in a hazardous (classified) location, as well as the risk of fire and electric shock associated with any electrical equipment.

Unless indicated otherwise in the Guide Information for the product category, the basic hazardous (classified) locations standards used to investigate these products with respect to risk of explosion are referenced below for the protection techniques shown.

Protection Technique

Explosion-proof and dust-ignition-proof

Intrinsic safety

Nonincendive circuits, components and equipment;
hermetically sealed and sealed components;
nonsparking equipment;
dust-tight enclosures

Purged and pressurized

Standard

ANSI/UL 1203, "Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations"

ANSI/UL 913, "Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II and III, Division 1, Hazardous (Classified) Locations"

ANSI/ISA-12.12.01, "Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations," or

UL 1604, "Electrical Equipment for Use in Class I and II, Division 2, and Class III Hazardous (Classified) Locations"

ANSI/NFPA 496, "Purged and Pressurized Enclosures for Electrical Equipment"

INSTRUCTIONS AND PRODUCT MARKINGS

These products are intended to be installed in accordance with the installation instructions provided with the product. It is critical that the cautionary statements and installation and operating instructions on the product and in accompanying literature be followed.

GLOBAL POSITIONING SYSTEMS

If provided as part of the equipment, global positioning system (GPS) and/or enhanced 911 (E911) hardware, GPS and/or E911 operating software, or other GPS-related and/or E911-related aspects of equipment have not been investigated for performance or reliability. The equipment has only been investigated for the explosion, fire, shock and casualty hazards required by the applicable hazardous (classified) locations standards. Certification of the equipment does not cover the performance or reliability of any GPS and/or E911 hardware, GPS and/or E911 operating software, or other GPS-related and/or E911-related aspects of the equipment. **UL makes no representations, warranties or certifications whatsoever regarding the performance or reliability of any GPS-related and/or E911-related functions of the equipment.**

FIELD MODIFICATIONS

The UL Mark applies to the product as it is originally manufactured when shipped from the factory. Authorized use of the UL Mark is the manufacturer's declaration that the product was originally manufactured in accordance with the applicable requirements. UL does not know what the effect of a modification may have on the safety of the product or the continued validity of the UL certification mark unless the field modifications have been specifically investigated by UL. Unless UL investigates a modified product, UL cannot indicate that the product continues to meet UL's safety requirements.

The only exception for a field modification authorized by UL is when the product has specific replacement markings. For example, a switchboard may have specific grounding kits added in the field. The switchboard is marked with a list of specific kit numbers that have been investigated for use in that particular switchboard. Only grounding kits that are included on the product have been investigated for use in that product.

MARINE EQUIPMENT

Certain equipment has been specifically investigated and certified for use aboard marine vessels. Such equipment has been investigated in accordance with the applicable requirements of UL, the United States Coast Guard, the American Boat and Yacht Council, Inc., and the National Fire Protection Association. For additional information, see the general Guide Information for the specific product category. Equipment bearing UL's Marine Mark is suitable for use only with stranded copper wire.

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.



Documents

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ACCESS CONTROL SYSTEM UNITS FOR USE IN HAZARDOUS LOCATIONS (AATF)

USE

This category covers units for access control systems, providing a means of regulating or controlling entry into an area, or access to or the use of a device by electrical, electronic and/or mechanical means.

Intrinsically safe systems covered under this category have been investigated on the basis that all equipment connected to the system is certified as part of the system unless otherwise indicated and is used as intended.

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic unclassified locations standard used to investigate products in this category is ANSI/UL 294, "Access Control System Units."

The basic hazardous (classified) locations standards used to investigate products in this category are referenced in Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Access Control System Unit for Hazardous Locations," "Access Control System (Associated Apparatus)" or "Access Control System Unit (Associated Apparatus)," or other appropriate product name as shown in the individual Listings.

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

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15370 BARRANCA PKY, IRVINE CA 92618

Class I, Groups A, B, C and D, Division 2 only.

Access control system unit, Model 536X may be followed by 5 or 8, followed by letters, followed by B or G, followed by T, followed by T, followed by numbers, followed by numbers, followed by letters A thru Z and numbers 1 thru 9.

AIR CONDITIONING EQUIPMENT FOR USE IN HAZARDOUS LOCATIONS (AHSY)

AIR CONDITIONERS FOR USE IN HAZARDOUS LOCATIONS (AIDR)

Room Air Conditioners for Use in Hazardous Locations (AINU)

USE AND INSTALLATION

This category covers room air conditioners for use in hazardous locations. They are encased assemblies designed as a unit and intended as the prime source of refrigeration and dehumidification, basically intended to serve a single room, zone or space. They are intended for installation in windows or through walls. These units employ alternating-current, hermetic refrigerant motor-compressors with factory-charged refrigeration systems and include a means for circulating air. The effect of in-wall units on the fire resistance rating of the wall has not been investigated.

Permanently connected units are intended to be connected only to a branch circuit protected by overcurrent devices which do not exceed the value marked on the data plate or attached wiring diagram. The marked branch circuit overcurrent device protection is the maximum for which the unit has been investigated. If time-delay fuses are required for starting, the unit is marked to this effect.

Cord-connected units that require a time-delay fuse or circuit breaker to permit motor restarting are marked to this effect.

Some room air conditioners may be designed for installation with the indoor side being located in a room purged and pressurized in accordance with ANSI/NFPA 496, "Purged and Pressurized Enclosures for Electrical Equipment," to become an unclassified location, and the outdoor side in a Division 2 hazardous (classified) location. Marking on the product and in the installation instructions identify units intended for this use.

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic unclassified locations standard used to investigate products in this category is ANSI/UL 484, "Room Air Conditioners."

The basic hazardous (classified) locations standards used to investigate products in this category are referenced in Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Room Air Conditioner for Use in Hazardous Locations."

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

BEBCO INDUSTRIES

E183596

4725 LAWDALE, LA MARQUE TX 77568

Class I, Division 2, Groups B, C and D.

FRIEDRICH AIR CONDITIONING CO

E58686

SUITE 500 10001 REUNION PL, SAN ANTONIO TX 78216

Class I, Groups A, B, C and D, Division 2 only.

Class I, Group D, Division 2 only.

ICE QUBE INC

141 WILSON AVE, GREENSBURG PA 15601

Room Air Conditioners for Use in Hazardous Locations (AINU)–Continued

Class I, Division 2 Groups B, C and D only.

ISC SALES INC**E341626**

4421 TRADITIONAL TRL, PLANO TX 75093

Class I, Division 2, Groups B, C and D.

THERMAL EDGE INC**E341378**

SUITE 111 1751 HURD DR, IRVING TX 75038

Class I, Division 2, Groups B, C and D.

AIR FILTERING APPLIANCES FOR USE IN HAZARDOUS LOCATIONS (AISX)**GENERAL**

This category covers portable and stationary air-filtering appliances intended for window, floor, table and similar mounting. The appliances consist primarily of air-circulating fans and mechanical filters.

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic hazardous (classified) locations standards used to investigate products in this category are referenced in Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Air Filtering Appliance for Use in Hazardous Locations," or other appropriate product name as shown in the individual Listings.

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

THERMO SHANDON INC, DBA THERMO FISHER**E71936**

SCIENTIFIC INC

171 INDUSTRY DR, PITTSBURGH PA 15275

Class I, Group D, Division 2.

AIR-SAMPLING EQUIPMENT FOR USE IN HAZARDOUS LOCATIONS (ALOA)**GENERAL**

This category covers air-sampling pumps, sample-draw pumps and similar equipment.

RELATED PRODUCTS

Equipment investigated for use only in the hazardous (classified) locations of automotive and marine service stations is covered under Control, Monitoring and Auxiliary Equipment (EQXX).

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic hazardous (classified) locations standards used to investigate products in this category are referenced in Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Air Sampling Equipment for Use in Hazardous Locations" or "Air Sampling Pump for Use in Hazardous Locations," or other appropriate product name as shown in the individual Listings.

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

DRAEGER SAFETY INC**E343220**

101 TECHNOLOGY DR, PITTSBURGH PA 15275

Class I, Division 1, Groups A, B, C and D; Class II, Division 1, Groups F and G.

X-act 5000 air-sampling pump, Model GEP-0100, intrinsically safe when used with Draeger battery pack Part No. 4523520 or 4523525.

SENSIDYNE L P**E118722**

16333 BAY VISTA, CLEARWATER FL 33760

Class I, Groups A, B, C and D.

Intrinsically safe air sampling pump, Model BDX-II, for use with self-contained 4.8 v battery pack, Part No. 801862.

Intrinsically safe sample draw pump, Part Nos. 800419, 800662, 801361, for use with self-contained 4.8 v battery pack, Part No. B800086 or 783-0008-04.

Class I, Groups C and D; Class II, Groups E, F and G.

Intrinsically safe portable air sampling pumps, Models BDX-74, BDX-75, for use with self-contained battery pack, Part No. 7010780-1.

Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III.

Intrinsically safe portable air sampling pump, Model BDX-530, for use with self-contained battery pack, Part no. 7011788-1.

Intrinsically safe portable air sampling pumps, Models BDX-530CF, BDX-530CFT, for use with self-contained battery pack, Part No. 7011788-2 or 7011788-3.

Intrinsically safe portable air sampling pump, Model HFS 513A may be followed by -U, followed by -C or -P, with or without suffix -R for use with self-contained 6.0 v battery pack, Gilian Model HFS 513A, Part No. C-850029 or C-850029-1.



Documents

Document Sharing Hub

Intrinsically safe portable air sampling pump, Model LFS 113D may be followed by C, with or without suffix -R, for use with self-contained 4.8 v battery pack, Gilian Model LFS 113D, may be followed by C, with or without suffix R, Part No. 800086.

Intrinsically safe portable air sampling pump, Model GilAir/Basic, Part No. 800485 may be followed by three additional suffix numbers; Model GilAir/Clock, Part No. 800508 may be followed by three additional suffix numbers; Model GilAir/Program, Part No. 800510 may be followed by three additional suffix numbers. For use in Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III, Hazardous locations when used with self-contained 4.8 v battery pack, Gilian Part No. 800464, 800464-1 or 783-0008-03.

Intrinsically safe "Gilair 5" portable air sampling pump, Model R or S may be followed by C or P and "Gilair 8" portable air sampling pump followed by Basic, Program or Clock. For use with self-contained 6.0 v battery pack, Gilian Part No. 800869, 800869-1, 800869-7 or 783-0009-02.

Intrinsically safe portable air sampling pump, Model GilAir II, for use with self-contained battery pack, Part No. 800869, 800869-1 or 800869-7.

Intrinsically safe portable air sampling pump, Model Gilian 3500, for use with self-contained battery pack, Part No. 801930.

SKC INC**E62011**

863 VALLEYVIEW RD, EIGHTY FOUR PA 15330

Class I, Groups A, B, C and D.

Intrinsically safe portable air sampling pump, Model 222- with suffixes 5-1.5, 1-4, 3, 3-12, 4, 10-30, for use with self-contained 2.4 V battery pack, SKC Part No. 222-3SR-04.

Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III.

Intrinsically safe portable air sampling pumps, Model 224 with suffixes 35, 36, 37, 38, 40, 41, 42, 43, 49, PC3 or PC7 for use with self-contained 4.8 V battery pack, SKC Model 224-17SD; Models 224-43XR, -44XR, 224-PCXR3, -PCXR4, -PCXR7, -PCXR8 for use with self-contained 6.0 V battery pack, SKC Model 224-30, P21661, or P21661MH; Model 224-52 for use with self-contained 4.8 V battery pack, SKC Part No. P78011A or P78011AMH.

Model 210-1002 "Pocket Pump" for use with self-contained 2.4 V NiCad battery pack, Part No. P20129-1 or 2.4 V NiMH battery pack, Part No. P20129-2.

"Airchek 2000", Model 210-2002 for use with SKC 4.8 V battery pack, Part No. P20136 or P20136MH.

Airchek XR5000, Cat. Nos. 210-5001, 210-5002, 210-5011, 210-5012, 210-5021, 210-5022, 210-5031, 210-5032, when used with SKC Battery Pack, Part No. P85002 or P85004.

ZEFON INTERNATIONAL INC**E106436**

5350 SW 1ST LN, OCALA FL 34474

Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III.

Intrinsically safe portable air sampling pumps, Part Nos. "Escort Elf", "Escort LC" when used with MSA battery pack, Part. No. 497702 or 10087242.

ALARM SYSTEM UNITS FOR USE IN HAZARDOUS LOCATIONS (ALSY)

INTRUSION-DETECTION UNITS FOR USE IN HAZARDOUS LOCATIONS (ARCX)

GENERAL

This category covers electronic units, including those which utilize rays (photoelectric), electromagnetic waves, ultrasonic radiation, or other electronic principles to signal intrusion or movement within mercantile premises or approaches to safes, stockrooms, etc., that may be used to form a complete protective system.

These units have been investigated for fire, electrical shock, and reliability of operation. The effect of radiation on radio communication or radio navigation has not been investigated.

The Federal Communications Commission should be consulted for regulations governing the use and operation of radiation devices.

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic unclassified locations standard used to investigate products in this category is ANSI/UL 639, "Intrusion Detection Units."

The basic hazardous (classified) locations standards used to investigate products in this category are referenced in Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Intrusion Detection Unit," "Intrusion Detection Unit Power Supply" or "Intrusion Detection Unit Accessory."

The product name may be followed by "for Use in Hazardous Locations" or "(Associated Apparatus)."

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

UTC FIRE & SECURITY B V**E158789**

KELVINSTRAAT 7 6003 DH, WEERT THE NETHERLANDS

Associated apparatus, nonhazardous locations, Model 6197BB barrier. Provides intrinsically safe circuits for Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III hazardous locations when connected with Model 6197PIR in accordance with Control Drawing 10198.

Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III.

Model 6197PIR passive-infrared intrusion-detection unit, intrinsically safe when connected to Model 6197BB barrier in accordance with Control Drawing 10198.

ALTERNATORS FOR USE IN HAZARDOUS LOCATIONS (ARDK)

GENERAL

This category covers electric alternators intended for use in hazardous (classified) locations.

For Class I, Division 2 locations, the enclosure may be of the open or totally-enclosed type. The Group designation is marked unless the alternator is acceptable for Groups A, B, C and D. The alternator is also marked with the operating temperature code designating the maximum internal or external surface temperature determined at rated amperes marked on the alternator, if the operating temperature is greater

than 100°C. If the enclosure incorporates one or more arcing or sparking parts, the part is housed in a Class I, Division 1 enclosure or the part is within a hermetically-sealed enclosure, constructed with current-interrupting contacts immersed in oil, located in a nonincendive circuit or located in a purged and pressurized enclosure.

For Class II, Division 2 Locations, the enclosure is of the totally enclosed type. The alternator is marked with the operating temperature or operating temperature code designating the maximum external temperature determined at rated amperes (as marked on the alternator), when operating in free air (not dust blanketed), if the external temperature is greater than 100°C.

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic unclassified locations standard used to investigate products in this category is ANSI/UL 508, "Industrial Control Equipment."

The basic hazardous (classified) locations standards used to investigate products in this category are referenced in Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Alternator for Use in Hazardous Locations."

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

C E NIEHOFF & CO**E181460**

2205 LEE ST, EVANSTON IL 60202

Class I, Division 2, Group D.

Alternator, Model C130 followed by suffixes, with A2-139 or A2-140 regulator.

LUBRICANT-DISPENSING EQUIPMENT FOR USE IN HAZARDOUS LOCATIONS (BAYZ)

GENERAL

This category covers equipment intended for dispensing lubricants, such as lubricating oils and greases.

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic hazardous (classified) locations standards used to investigate products in this category are referenced in Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Lubricant Dispensing Equipment for Hazardous Locations" or "Lubricant Dispenser for Hazardous Locations," or other appropriate product name as shown in the individual Listings.

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

A T S ELECTRO-LUBE INTERNATIONAL INC**E149679**

7388 WILSON AVE, DELTA, BC V4G 1H3 CANADA

Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III hazardous locations.

Intrinsically safe automatic lubricant dispensers, - Electro-Lubers Models 60, 125, 250, 475. For use with 2 self-contained 1.5 v alkaline batteries.

Class I, Division 2; Groups A, B, C, D; Class II, Division 2; Groups F and G; Class III hazardous locations.

Electro-Luber MD-2000 Models 250 and 500 when used with one ten cell self-contained alkaline battery pack.

Ultimate Luber Models # 125, 250, and 500, Titan CL, Titan II, Titan Oilier, and Jack Luber 125.

ALEMITE L L C**E328442**

1057 521 CORPORATE CENTER DR, FORT MILL SC 29707

Class I, Division 2, Groups B, C and D Hazardous Locations.

Oil Mist Assembly Model 57 followed by 1, 2, 3, 4, 5 or 6, followed by 1, 2, 3, 4, 5 or 6, followed by A or B, followed by A, B or C, followed by A, B or C, followed by 1, 2, 3, 4 or 5, followed by A or B, followed by A, D or E, followed by 1 or 2, followed by U, followed by A, B or C, followed by 1 or 2.

GE ENERGY**E333076**

BLDG 37-374 1 RIVER RD, SCHENECTADY NY 12345

Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III hazardous locations.

Intrinsically safe automatic lubricant dispensers, - Electro-Lubers Models 250, 475. For use with 2 self-contained 1.5 v alkaline batteries.

GRACO MINNESOTA INC**E336488**

88 11TH AVE NE, MINNEAPOLIS MN 55413

Class I, Division 2, Groups A, B, C and D; Class II, Division 2, Groups F and G; Class III.

Model EM-DRIVE Automatic lubricant dispensers.

HORNCHE CORP**E218441**

8TH FL-1 857 JING-GUO RD, TAOYUAN 330 TAIWAN

Class I, Division 2, Groups B, C and D; Class II, Division 2, Groups F and G; Class III.

Brand Easy Lube, Models 150, and 250, followed by, blank, classic, elite or RFID.

Class I, Division 2, Groups B, C and D; Class II, Division 2, Groups F and G; Class III.

Brand Easy Lube, Models 150B.



Documents

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HTL PERMA USA L P**E315253**

2129 CENTER PARK DR, CHARLOTTE NC 28217

Class I, Division 2, Groups A, B, C and D; Class II, Division 2, Groups F and G; Class III.

Models Perma Star LED, Perma Star Vario Automatic lubricant dispensers.

Class I, Division 2, Groups A, B, C and D.

Model Perma Pro Automatic lubricant dispensers may be used with Perma MP-6 distribution manifold.

KLT CO LTD**E304815**

597-2 GEUMSEUNG-RI TANHYEON-MYEON, PAJU-SI,

GYEONGGI-DO 413-843 REPUBLIC OF KOREA

Class I, Division 2, Groups C and D Hazardous Locations

Single point lubricator, Model KLT-1250EX for use with self contained 4.5 VDC alkaline batteries.

LUBRICATION SYSTEMS CO OF TEXAS**E204253**

1740 STEBBINS DR, HOUSTON TX 77043

Class I, Division 2, Groups B, C, D hazardous locations.

Model IVT oil mist generator.

Model JD oil mist generator.

SKF MAINTENANCE PRODUCTS**E315846**

KELVINBAAN 16 3439 MT, NIEUWEGEIN THE NETHERLANDS

Class I, Division 2, Groups A, B, C and D; Class II, Division 2, Groups F and G; Class III Hazardous Locations.

Model "System 24 EML" Single Point Automatic Lubricator.

TIMKEN CO**E317623**

1835 DUEBER AVE SW, CANTON OH 44706

Class I, Division 2, Groups A, B, C and D; Class II, Division 2, Groups F and G; Class III.

Model M-POWER.

Class I, Division 2, Groups A, B, C and D.

Models C-POWER, C-POWER DISTRIBUTION BLOCK.

BRAKES, ELECTRIC FOR USE IN HAZARDOUS LOCATIONS (BHIX)**GENERAL**

This category covers brakes intended primarily for holding purposes, but may be used for stopping light-inertia loads.

This category includes two types of electric brakes. One type is intended to be attached directly to a certified motor at the factory of the motor manufacturer in accordance with instructions provided by the brake manufacturer. The other type is provided with a mounting bracket and is coupled to the motor.

For Class I, Division 2 locations, the enclosure may be of the open or totally enclosed type. The Group designation is marked unless the brake is acceptable for Groups A, B, C and D. The brake is also marked with the operating temperature code designating the maximum internal or external surface temperature determined at rated full-load torque marked on the brake, if the temperature is greater than 100°C. If the enclosure incorporates one or more arcing or sparking parts, the part is housed in a Class I, Division 1 enclosure or the part is within a hermetically sealed enclosure, constructed with current-interrupting contacts immersed in oil, located in a nonincendive circuit or located in a purged and pressurized enclosure. If the brake is provided with an internal space heater, the space heater is intended to be wired in the control circuit such that the space heater is energized when the motor to which the brake is coupled is deenergized, and vice versa.

For Class II, Division 2 locations, the enclosure is of the totally enclosed type. The brake is marked with the operating temperature or operating temperature code designating the maximum full load external temperature determined at rated full-load torque (as marked on the brake), when operating in free air (not dust blanketed), if the external temperature is greater than 100°C.

The Certification Mark on a brake applies to the brake only, not to driving equipment, such as a motor.

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division I and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic standard used to investigate products in this category is ANSI/UL 674, "Electric Motors and Generators for Use in Division 1 Hazardous (Classified) Locations," or the requirements contained in UL Subject 1836, "Outline of Investigation for Electric Motors and Generators for Use in Class I, Division 2 and Class II, Division 2 Hazardous (Classified) Locations."

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Electric Brake for Hazardous Locations."

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

DINGS DYNAMICS, DIV OF VENTUREDYNE LTD**E27811**

4740 W ELECTRIC AVE, MILWAUKEE WI 53219

Class I, Groups C and D; Class II, Groups E, F, and G. The brakes are intended essentially for holding purposes, but may be used for stopping light inertia loads.**REXNORD INDUSTRIES L L C STEARNS DIV****E14893**

5150 S INTERNATIONAL DR PO BOX 100640, CUDAHY WI 53110

Class I, Groups C and D; Class II, Group E, and G.**Class I, Groups C and D, Class II, Groups F and G.****Class I, Division 2, Groups A, B, C and D, Class II, Division 2, Groups F and G.****Class II, Division 2, Groups F and G.**

The brakes are intended essentially for holding purposes but may be used for stopping light inertia loads.

CABLE SEALING FITTINGS FOR USE IN HAZARDOUS LOCATIONS (CYMX)

USE

**Documents**

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This category covers combination termination and sealing fittings for threaded connection of cables to equipment in Class I, Division 1 and Division 2, and/or Class II, Division 1 and 2 hazardous locations, as indicated in the individual certifications. They are intended for use only with sealing compound as specified by the manufacturer in instructions furnished with the fitting.

These devices are intended for use in sealing the conductors and outer jackets of certified cable of the type indicated in the individual certifications. No splices of conductors are permitted to be made in the fitting. Restrictions on position and/or location of the sealing fitting are indicated in the manufacturer's instructions.

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic standard used to investigate products in this category is ANSI/UL 2225, "Cables and Cable Fittings for Use in Hazardous (Classified) Locations."

UL MARK

The Listing Mark of UL on the product, or the UL symbol on the product and the Listing Mark on the smallest unit container in which the product is packaged is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Type + Cable Sealing Fitting for Use in Hazardous Locations."

+ Generic cable designation, such as MC, MC-HL, TC, TC-HL, etc.

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

AMERICAN CONNECTORS

E150924

2006 MARTIN LUTHER KING FWY, FT WORTH TX 76104

Class I, Groups A, B, C and D; Class II, Groups E, F and G.

Type MC cable sealing fittings for use only with cable employing continuous corrugated aluminum armor with the "MC-HL" surface marking.

Class I, Groups A, B, C and D, Division 2; Class II, Groups F and G, Division 2.

Type MC cable sealing fittings for use only with cable employing interlocking steel or aluminum armor or continuous corrugated aluminum armor.

APPLETON ELECTRIC L L C

E83827

9377 W HIGGINS RD, ROSEMONT IL 60018

Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III.

Type TMCX cable sealing fittings.

Type MC-HL cable sealing fittings, for use in hazardous locations.

Class I, Division 2, Groups A, B, C and D; Class II, Division 2, Groups F and G; Class III.

Type MC cable sealing fittings.

COOPER CROUSE-HINDS

E122485

WOLF & 7TH NORTH ST PO BOX 4999, SYRACUSE NY 13221

Class I, Groups A, B, C and D, Division 2; Class II, Groups F and G, Division 2; Class III.

Type MC cable sealing fittings for use only with cable employing interlocking steel or aluminum armor, or continuous corrugated aluminum armor.

Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III.

Type MC-HL cable sealing fittings for use only with cable employing continuous corrugated aluminum armor.

HAWKE INTERNATIONAL, DIV OF HUBBELL LTD

E84940

OXFORD ST W, ASHTON-UNDER-LYNE, LANCASHIRE OL7

ONA UNITED KINGDOM

Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III.

Type MC cable sealing fittings, for use only with cable employing continuous corrugated aluminum armor with the "HL" surface marking.

Class I, Division 2, Groups A, B, C and D; Class II, Division 2, Groups F and G; Class III.

Type TC tray cable and Type MC cable sealing fittings.

KILLARK, DIV OF HUBBELL INC (DELAWARE)

E323304

3940 MARTIN LUTHER KING DR, ST LOUIS MO 63113

Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III.

Cable sealing fittings, Type MC-HL.

Class I, Division 2, Groups A, B, C and D; Class II, Division 2, Groups F and G, Class III.

Cable sealing fittings, Type TC.

PRYSMIAN CABLES & SYSTEMS LTD

E106418

OAK ROAD WREXHAM INDUSTRIAL ESTATE, WREXHAM,

WREXHAM LL13 9PH UNITED KINGDOM

Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III.

Type MC cable sealing fittings for use only with continuous corrugated aluminum armor with the "MC-HL" surface marking.

Class I, Groups A, B, C and D, Division 2; Class II, Groups F and G, Division 2, Class III.

Type TC cable sealing fittings for use with tray cable.

Type MC cable sealing fittings, for use only with metal clad cable employing an interlocking aluminum or steel armor or continuous corrugated aluminum armor.

THOMAS & BETTS CORP

E82038

8155 T & B BLVD, MEMPHIS TN 38125

Class I, Groups A, B, C and D; Class II, Groups E, F and G.

Type MC cable sealing fittings, for use only with metal clad cable employing corrugated aluminum armor with the "HL" surface marking.

Class I, Groups A, B, C and D, Division 2; Class II, Groups F and G, Division 2

Type MC cable sealing fittings, for use with metal clad cable employing interlocking aluminum or zinc coated steel armor or continuous corrugated aluminum armor.

Vertical or horizontal mounting.

Type TC cable sealing fittings, for use only with tray cable. Vertical or horizontal mounting.

CAMERA EQUIPMENT FOR USE IN HAZARDOUS LOCATIONS (CYPH)

GENERAL

This category covers camera equipment, such as cameras and pan and tilt drives.

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic unclassified locations standard used to investigate products in this category is ANSI/UL 508, "Industrial Control Equipment."

The basic hazardous (classified) locations standards used to investigate products in this category are referenced in Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Camera for Use in Hazardous Locations" or "Pan and Tilt Drive for Use in Hazardous Locations," or other appropriate product name as shown in the individual Listings.

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

BOSCH SECURITY SYSTEMS B V

E345616

BLDG SX GLASLAAN 2 5616 LW, EINDHOVEN THE

NETHERLANDS

Class I, Groups C and D; Class II, Groups E, F and G; and Class III.

Camera, Model VEN-650V05-X, where X can be 1 or 2, followed by S3 or A3, followed by blank or X, where X can be any letter.

Illuminator, Model LED-65, followed by 8 or 9, followed by -SX or -AX, where X can be M or W.

PELCO INC

E126442

3500 PELCO WAY, CLOVIS CA 93612

Class I, Groups C and D; Class II, Groups E, F and G.

Pan and tilt drive, Models PT1260EX, PT1260EX/PP.

Class I, Groups A, B, C and D; Class II, Groups E, F and G.

Models IPSXM, IPSXME, EHXM, EHXME may be followed by 30 or 31, followed by CXX or CBWXX, followed by 2, 4 or 7, may be followed by X.

PEPPERL & FUCHS INC

E311950

1600 ENTERPRISE PKY, TWINSBURG OH 44087

Class I, Division 2, Groups C and D.

Pressurized video camera, Model 1001A-WPS-CI-Z-PM-VIDEOIARM-01.

Class I, Division 2, Groups A, B, C and D.

Pressurized video camera, Model 1001A-WPSA-CI-Z-PM-VIDEOLARM-02.

Class II, Groups E, F and G.

Pressurized video camera, Model 1001A-WPS-CII-Z-PM-VIDEOLARM-03.

VICON INDUSTRIES INC

E192797

89 ARKAY DR, HAUPPAUGE NY 11788

Class I, Groups C and D; Class II, Groups E, F and G.

Pan and tilt mechanism, Model V380 PTX-SVPP.

CIRCUIT BREAKERS FOR USE IN HAZARDOUS LOCATIONS (DKAR)

This category covers circuit breakers which, unless otherwise noted, are of the manually operable, air-break type, providing automatic overcurrent protection.

These circuit breakers and circuit breaker enclosures are intended for use with copper conductors unless marked to indicate which terminals are suitable for use with aluminum conductors. Such markings are independent of any marking on terminal conductors and are on a wiring diagram or other readily visible location.

Unless the device is marked to indicate otherwise, the wiring space and current-carrying capacity are based on the use of Type R, or other 60°C wire, in circuits rated 100 A or less, and the use of Type RH, or other 75°C wire, for higher-amp-rated circuits.

A suitable marking is required in a circuit breaker enclosure, whether or not terminals are mounted therein, if it is intended that the breaker to be mounted therein is intended to be used with aluminum wire.

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

BRANCH CIRCUIT AND SERVICE CIRCUIT BREAKERS FOR USE IN HAZARDOUS LOCATIONS (DKNZ)

USE

This category covers enclosed circuit breakers and circuit-breaker enclosures designed to provide service-entrance, feeder or branch-circuit protection in accordance with ANSI/NFPA 70, "National Electrical Code." These circuit breakers are designed to carry rated current at ambient temperatures of 40°C or less and are marked "40C."

Circuit-breaker enclosures are intended for use only with certified mechanisms specified in the enclosure markings.

RELATED PRODUCTS



Documents

Document Sharing Hub

Branch Circuit and Service Circuit Breakers for Use in Hazardous Locations (DKNZ)–Continued

See Circuit Breakers (DHJR) and Ground-fault Circuit Interrupters (DKUY).

ADDITIONAL INFORMATION

For additional information, see Circuit Breakers for Use in Hazardous Locations (DKAR) and Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic unclassified locations standards used to investigate products in this category are ANSI/UL 489, "Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures," and ANSI/UL 508, "Industrial Control Equipment."

The basic hazardous (classified) locations standards used to investigate products in this category are referenced in Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Circuit Breaker for Hazardous Locations" or "Circuit Breaker Enclosure for Hazardous Locations."

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

APPLETON ELECTRIC L L C **E59122**

9377 W HIGGINS RD, ROSEMONT IL 60018

Class I, Groups C and D.

COOPER CROUSE-HINDS **E10585**

WOLF & 7TH NORTH ST PO BOX 4999, SYRACUSE NY 13221

Class I, Groups C and D, Div. 2.

CURLEE, DIV OF APPLETON ELECTRIC L L C **E104566**

13639 ALDINE WESTFIELD, HOUSTON TX 77039

Class I, Groups C and D; Class II, Groups E, F and G.

KILLARK, DIV OF HUBBELL INC (DELAWARE) **E30962**

3940 MARTIN LUTHER KING DR, ST LOUIS MO 63113

Class I, Groups C and D; Class II, Groups E, F, and G; Class III.

SCHNEIDER ELECTRIC USA INC / SQUARE D CO **E10944**

1010 AIRPARK CENTER DR, NASHVILLE TN 37217

Class I, Group D; Class II, Groups E, F and G.

CLEANING MACHINES FOR USE IN HAZARDOUS LOCATIONS (DMRR)

GENERAL

This category covers portable vacuum cleaners provided with special suction attachments, such as crevice tools, brushes, etc., intended to facilitate cleaning operations.

Some vacuum cleaners are designed specifically to pick up water in connection with floor-scrubbing operations; such cleaners are so indicated in the individual certifications.

Connections to supply lines require the use of receptacles with plugs, or receptacles with plugs interlocked with snap switches or their equivalent, certified for the specified hazardous locations. The flexible cord connected to the units should be frequently inspected and replaced when necessary. Terminal connections should be properly made and maintained.

Authorities Having Jurisdiction should be consulted with regard to the conditions under which these portable devices will be permitted for use. It is recognized that portable equipment should be used only when necessary.

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic hazardous (classified) locations standards used to investigate products in this category are referenced in Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Cleaning Machine for Use in Hazardous Locations."

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

GOODWAY TECHNOLOGIES CORP **E301394**

420 WEST AVE, STAMFORD CT 06902

Class I, Groups A, B, C and D, Division 2; Class II, Groups F and G, Division 2.

MINUTEMAN INTERNATIONAL INC **E112167**

14N845 US RTE 20, PINGREE GROVE IL 60140

Class I, Group D; Class II, Groups F and G.

COMBUSTION-DETECTION EQUIPMENT FOR USE IN HAZARDOUS LOCATIONS (DUFK)

USE

This category covers electronically operated combustion detectors intended for use on gas- or oil-burning equipment.



Documents

Document Sharing Hub

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic hazardous (classified) locations standards used to investigate products in this category are referenced in Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Combustion Detection Equipment for Use in Hazardous Locations" or "Combustion Detector for Use in Hazardous Locations," or other appropriate product name as shown in the individual Listings.

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

HONEYWELL INTERNATIONAL INC

E34649

ACS ENVIRONMENTAL & COMBUSTION CONTROLS 1985

DOUGLAS DR N, GOLDEN VALLEY MN 55422

Class I, Groups C and D; Class II, Groups E, F, and G.

MEGGITT SAFETY SYSTEMS INC

E62865

1915 VOYAGER AVE, SIMI VALLEY CA 93063

Class I, Groups C and D.

CONDUIT FITTINGS FOR USE IN HAZARDOUS LOCATIONS (EBNV)

GENERAL

This category covers the following types of fittings:

Conduit fittings for draining or venting are intended for mounting in existing conduit openings of conduit boxes and electrical devices. Fittings for draining or venting that do not mount in existing conduit openings, such as those with threads smaller than 1/2-in. trade size, are covered under UL's Component Recognition Program. Only drain fittings with shutoff valves should be installed in oil-immersed devices and only where there is close supervision so that the fittings will not be left open to permit loss of oil.

Conduit fittings for sealing are intended for use only with sealing compounds specified by the manufacturer in instructions furnished with the fitting. These devices are intended for use in sealing conductors in conduit lines. No splices of conductors should be made in the fittings. Instructions with the fitting indicate any restriction on position or location of the sealing fittings. The maximum number and size of conductors that may be installed within the sealing fitting are stated in the manufacturer's installation instructions provided with each fitting.

Conduit unions are intended for use in threaded rigid conduit wire raceways.

90-degree box connector-type conduit unions are intended for use at threaded openings of devices in accordance with ANSI/NFPA 70, "National Electrical Code" (NEC).

Universal-type box connector conduit unions are intended for use at threaded openings of devices in accordance with the NEC and may be assembled at an angle greater than 90 degrees.

Flexible connection fittings are substantial fittings having an insulated inner wall and a flexible metal outer wall encased in a metal braid. They are intended for use where it is necessary to employ flexible connections in threaded rigid conduit systems. Information on the minimum inside radius of bend for which these fittings have been investigated is provided with the fitting.

Prospective users should first ascertain from Authorities Having Jurisdiction under what conditions these flexible connection fittings will be accepted. The use of flexible fittings should be avoided whenever possible. They should be used only when conditions are such that threaded rigid conduit cannot be used.

Conduit elbows and short-radius capped elbows are intended for use where it is desirable to have a 90-degree bend and where wires may be guided when being pulled through the conduit line.

Cord connectors are intended for use in making connections between threaded rigid metal conduit systems or hazardous location devices and extra hard service type flexible cord, having a grounding conductor, for portable equipment.

Fittings that are rain-tight or concrete-tight are so marked, or this information is provided with the fitting.

Cast-aluminum alloy conduit fittings covered under this category are not considered acceptable for installation in concrete or cinder fill, unless protected with asphalt base paint or the equivalent.

RELATED PRODUCTS

See Outlet Boxes for Use in Hazardous Locations (QBCR).

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic hazardous (classified) locations standards used to investigate products in this category are referenced in Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

UL MARK

The Listing Mark of UL on the product, or the Listing Mark on the smallest unit container in which the product is packaged, with or without the UL symbol on the product, is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Conduit Fitting for Hazardous Locations," or other appropriate product name as shown in the individual Listings.

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

ADALET/SCOTT FETZER CO

E10493

4801 W 150TH ST, CLEVELAND OH 44135

Class I, Groups A, B, C and D; Class II, Groups E, F and G.

Conduit unions, Close-up plugs, Drain/vent fitting, Short-radius capped elbows, Conduit fitting for sealing.

AKRON ELECTRIC INC

1025 EAGON ST, BARBERTON OH 44203

Class I, Groups A, B, C and D; Class II, Groups E, F and G.
 Drain/vent fitting, Conduit unions, Conduit fittings for sealing.

APPLETON ELECTRIC L L C**E10444****9377 W HIGGINS RD, ROSEMONT IL 60018**

Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III.
 Class I, Groups B, C and D; Class II, Groups E, F and G; Class III.
 Class I, Groups C and D; Class II, Groups E, F and G; Class III.
 Class I, Groups C and D; Class II, Group G; Class III.
 Class I, Groups C and D.

Class I, Group D; Class II, Groups E, F and G; Class III.

Class I, Groups A, B, C and D, Div. 2; Class II, Groups F and G, Div. 2.

Conduit elbows, Conduit fittings for draining or venting, Conduit fittings for sealing, Conduit fittings for sealing and draining, Conduit sealing hubs, Conduit unions, Cord connectors, Expansion conduit unions, Flexible connection fittings, Ninety degree box connector type unions, Short-radius capped elbows, Universal type elbow conduit unions, Close up plugs, bushings, Bell's.

ASCO**E195297****50 HANOVER RD, FLORHAM PARK NJ 07932**

Class I, Groups A, B, C and D; Class II, Groups E, F and G.
 Swivel conduit fittings.

BRIDGEPORT FITTINGS INC**E312219****705 LORDSHIP BLVD, STRATFORD CT 06615**

Class I, Groups C and D; Class II, Groups E, F and G; Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III.
 Reducing bushings, Conduit unions.

COOPER CROUSE-HINDS S A DE C V**E152934****AV JAVIER ROJO, GOMEZ 1170 COL 09300, GUADALUPE DEL MORAL, DF MEXICO**

Class I, Groups A, B, C and D; Class II, Groups E, F and G.

Conduit fittings for draining or venting, Conduit fittings for sealing, Conduit unions, Flexible connection fittings.

COOPER CROUSE-HINDS**E10279****WOLF & 7TH NORTH ST PO BOX 4999, SYRACUSE NY 13221**

Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III.

Conduit adapters, Conduit elbows, Conduit expansion unions, Conduit fittings for draining or venting, Conduit fittings for sealing, Conduit reducers, Conduit sealing fitting modification kit, Conduit unions, Cord connections, Flexible connection fittings, Ninety degree box connector type conduit unions, Short-radius capped elbows, Universal type box connector conduit unions.

EGS ELECTRICAL GROUP L L C**E34997****9377 W HIGGINS RD, ROSEMONT IL 60018**

Class I, Groups A, B, C and D; Class II, Groups E, F and G.
 Close-up plugs, Conduit elbows, Conduit fittings for sealing.

FIREBUS SYSTEMS INC**E335634****12818 CENTURY DR, STAFFORD TX 77477**

Class I, Groups A, B, C and D; Class II, Groups E, F and G.
 Flexible connection fittings.

Class I, Groups C and D; Class II, Groups E, F and G.

Flexible connection fittings.

Class I, Group D; Class II, Groups E, F and G.

GILBARCO INC**E71129****7300 W FRIENDLY AVE PO BOX 22087, GREENSBORO NC 27420**

Class I, Groups C and D; Class II, Groups E, F and G.
 Conduit elbows.

HUBBELL INC WIRING DEVICE DIV**E155867****40 WATERVIEW DR, SHELTON CT 06484**

Class I, Groups C and D.

Conduit fittings for draining or venting.

KILLARK, DIV OF HUBBELL INC (DELAWARE)**E10514****3940 MARTIN LUTHER KING DR, ST LOUIS MO 63113**

Class I, Groups A, B, C and D; Class II, Groups E, F and G.

Adaptors, Close up plugs, Conduit elbows, Conduit expansion unions, Conduit fittings for draining or venting, Conduit fittings for sealing, Conduit unions, Connection fittings, raintight, Flexible connection fittings, Ninety degree box connector type conduit unions, Reducing bushings, Short-radius capped elbows, Swivel elbow fittings.

NAM BUK ELECTRIC CO LTD**E143517****97 SAMGA-DONG, YONGIN-SHI, KYONGGI-DO 449-****800 REPUBLIC OF KOREA**

Class I, Groups C and D; Class II, Groups E, F and G.

Conduit elbows.

PRODUCTO ELECTRIC CORP**E166071****11 KINGS HWY, ORANBURG NY 10962**

Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III.

**Documents**

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Conduit bodies, Conduit fittings for sealing, Flexible connection fittings, Conduit unions .

R STAHL SCHALTGERAETE GMBH**E200949**

AM BAHNHOF 30 74638, WALDENBURG GERMANY
Class II, Division 2, Groups F and G and Class III.
Conduit hubs.

RAWELT S A DE C V**E198859**

PARQUE INDUSTRIAL LAGUNERO AV VALLE DEL GUADIANA
656 35070, GOMEZ PALACIO, DGO MEXICO
Class I, Groups C and D; Class II, Groups E, F and G.
Conduit fittings for sealing, Conduit unions.

SPARKSAFE INC**E228001**

1 PRION DR, OAKDALE PA 15071
Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III.
Conduit unions, Reducer bushings.

THOMAS & BETTS CORP**E193396**

8155 T & B BLVD, MEMPHIS TN 38125
Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III.
Conduit fittings for sealing, Conduit unions, Funnel reducers, Plugs, Reducer bushings.
Class I, Groups B, C and D; Class II, Groups E, F and G.
Conduit unions, Drain and breather conduit sealing fittings.
Class I, Groups C and D; Class II, Groups E, F and G; Class III.
Conduit fittings for sealing, Conduit elbows.
Class I, Groups A, B, C and D; Class II, Groups E, F and G.
Flexible connection fittings.
Class I, Groups C and D; Class II, Groups E, F and G.
Flexible connection fittings.

THOMAS & BETTS CORP**E34438**

8155 T & B BLVD, MEMPHIS TN 38125
Class I, Groups A, B, C and D; Class II, Groups E, F and G.
Close up plugs, Conduit fittings for sealing, Conduit unions, Reducing bushings, Short radius capped elbows.

U PRO FITTINGS INC**E181523**

8 BENGONG W 2ND RD GANGSHAN TOWNSHIP,
KAOHSIUNG HSIEN 820 TAIWAN
Class I, Groups A, B, C and D; Class II, Groups E, F and G, Conduit elbows.
Conduit fittings for draining or venting, Conduit elbows, Conduit Unions.

CORROSION-MEASURING EQUIPMENT FOR USE IN HAZARDOUS LOCATIONS (ELHS)

USE AND INSTALLATION

This category covers corrosion-measuring equipment, including control units, indicators, sensors, probes and auxiliary devices, used as part of corrosion-measuring systems.

Certain products in this category are associated apparatus and are intended for installation in unclassified locations. They are provided with intrinsically safe circuit(s) as indicated on the product, for extension into a hazardous location.

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic hazardous (classified) locations standards used to investigate products in this category are referenced in Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Corrosion Measuring Equipment for Use in Hazardous Locations" or "Corrosion Measuring Equipment (Associated Apparatus)," or other appropriate product name as shown in the individual Listings.

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

NALCO COMPANY**E232552**

1601 W DIEHL RD, NAPERVILLE IL 60563
Class I, Groups B, C and D.
Independent deposition monitor, Model RDM-C..

ROHRBACK COSASCO SYSTEMS INC**E62616**

11841 E SMITH AVE, SANTA FE SPRINGS CA 90670
Class I, Groups A, B, C and D.
Model 4020LT corrosometers, intrinsically safe when installed in accordance with Rohrback Cosasco installation Drawing No. 081036.
Models CDM, CDMII, CK-4 portable data terminals, intrinsically safe when used with six 1.5 v size AA alkaline batteries and when connected in accordance with interconnect diagram No. 723004.
Model CK-3 corrosometer, intrinsically safe corrosion measuring instrument, for use with four self-contained 1.5 v alkaline batteries.



Models RDC-CA, -CO remote data collectors, intrinsically safe when used with Rohrbach battery pack Part No. 748073-1, -2 or -3 and when connected in accordance with interconnect diagram No. 723004.

Models RDC-CAT, -COT, RDC4-COT remote data collectors, intrinsically safe when used with Rohrbach battery pack Part No. 748100-1, -2 or -3 and when connected in accordance with interconnect Diagram No. 723004.

Class I, Division 2, Groups A, B, C and D.

Models 4020L, 4020LT corrosionometers.

DATA PROCESSING EQUIPMENT, ELECTRONIC FOR USE IN HAZARDOUS LOCATIONS (ENWS)

GENERAL

This category covers individual units and systems, primarily electronic in function and design, which are intended to accumulate, process or store data, and which are intended for use in or have circuits or system units intended for use in areas classified as hazardous locations.

Many of these units and systems require special installation, such as a separate transformer and branch circuit power, power supplies, special grounding methods, high-frequency motor generator equipment, etc. Such features are covered in the manufacturer's installation instructions.

Intrinsically safe equipment is so marked on the product.

To maintain the intrinsically safe features of battery-operated appliances, only batteries of the type and size indicated on the product should be used.

RECONDITIONED PRODUCTS

This category also covers data processing equipment that is reconditioned by the original manufacturer or another party having the necessary facilities, technical knowledge and manufacturing skills (reconditioned data processing equipment may also be referred to as rebuilt). Reconditioned data processing equipment is reconditioned to the extent necessary by disassembly and reassembly using new or reconditioned parts. Reconditioned data processing equipment is subject to the same requirements as new data processing equipment.

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic unclassified locations standard used to investigate products in this category is ANSI/UL 508, "Industrial Control Equipment."

The basic hazardous (classified) locations standards used to investigate products in this category are referenced in Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and one of the following product names: "Data Processing Equipment for Use in Hazardous Locations," "Electronic Data Processing Equipment for Use in Hazardous Locations" (or "E.D.P. Equipment for Use in Hazardous Locations"), "Data Processing Equipment with Circuits for Use in Hazardous Locations," "Electronic Data Processing Equipment with Circuits for Use in Hazardous Locations" (or "E.D.P. Equipment with Circuits for Use in Hazardous Locations"), "Data Processing Equipment (Associated Apparatus)," "Electronic Data Processing Equipment (Associated Apparatus)" (or "E.D.P. Equipment (Associated Apparatus)"), or the name of the specific type of product as shown in the individual Listings.

For reconditioned products, the word "Reconditioned" or "Rebuilt" precedes the product name.

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

AMERICAN INNOVATIONS LTD

E213614

12211 TECHNOLOGY BLVD, AUSTIN TX 78727

Class I, Division 2, Groups A, B, C and D; Class II, Division 2, Groups F and G; Class III, Division 1 and 2 Hazardous Locations. Provides nonincendive field circuits to Class I and II, Division 2, Groups A, B, C, D, F and G Hazardous Locations.

Bullhorns.

BARTEC GMBH

E226123

MAX-EYTH-STRASSE 16 97980, BAD

MERGENTHEIM GERMANY

Class I, Division 1, Groups C and D, intrinsically safe.

Portable data terminals.

Class I, Division 1, Groups C and D; Class II, Division 1, Groups F and G; Class III, Division 1, intrinsically safe.

Portable data terminals.

CIRRONET INC

E235438

SUITE 140 3079 PREMIERE PKY, DULUTH GA 30097

Class I, Division 2, Groups A, B, C and D Hazardous Locations.

Wireless data modems, Wireless ethernet bridges.

INTERMEC TECHNOLOGIES CORP

E103264

6001 36TH AVE W, EVERETT WA 98203

Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III, Division 1, intrinsically safe.

Bar code readers, scanners.

Class I, Groups C and D; Class II, Groups F and G; Class III

Portable data terminals.

Class I, Groups C and D, intrinsically safe; Class II, Div. 2, Groups F and G; Class III.

Hazardous area terminals.

Class I, Division 2, Groups A, B, C and D; Class II, Division 2, Groups F and G; Class III.

Associated apparatus, nonhazardous locations.

Bar code readers, scanners, touch probes, wands.

Base and repeater transceiver units.

Handheld Computer.

Portable RFID Reader Accessories.

Class I, Division 2, Groups A, B, C and D.



Documents

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N-TRON CORPORATION**E214222****3101 INTERNATIONAL DR, MOBILE AL 36606**

Class I, Division 2, Groups A, B, C and D.

OPEN, 5 Slot backplane, 10/100 BaseTX copper modules, 100 BaseFX fiber port modules, CPU modules, Industrial ethernet switches, Industrial ethernet media converters, Industrial Ethernet Switch Devices, Industrial Ethernet Wireless Devices, Industrial media converters, Industrial Power Extractors, Industrial remote access servers, Modular industrial ethernet switches.

PANASONIC CORPORATION, PANASONIC**E225547****CORPORATION OF NORTH AMERICA****1 PANASONIC WAY, SECAUCUS NJ 07094**

Class I, Division 2, Groups A, B, C and D hazardous locations.

Computers, Laptop computers, Wireless displays.

RSA SECURITY INC**E211761****174 MIDDLESEX TPKE, BEDFORD MA 01730**

Class I, Groups A, B, C and D, intrinsically safe.

Secure ID tokens.

SERGIO MIRANDA POZOS**E346888****VASCO DE QUIROGA 283-3 COL BELISARIO DOMINGUEZ****14080, TLALPAN, DF MEXICO**

Class I, Division 2, Groups A, B, C and D Hazardous Locations.

Multimedia kiosks.

SYMBOL TECHNOLOGIES INC**E198978****1 SYMBOL PLZ, HOLTSVILLE NY 11742**

Class I, Division 2, Groups A, B, C and D.

Portable Data Terminals, Handheld computers, Laser barcode scanners.

Class I, Division 1, Groups C and D, intrinsically safe.

Portable data terminals.

SYNETCOM DIGITAL INC**E244382****SUITE 100 3544 SEAGATE WAY, OCEANSIDE CA 92056**

Class I, Division 2, Groups A, B, C and D Hazardous Locations.

Wireless ethernet bridges.

TLV CO LTD**E113032****881 NAGASUNA NOGUCHI-CHO, KAKOGAWA 675-8511 JAPAN**

Class I, Groups A, B, C and D, intrinsically safe.

Steam trap computers.

ZYPCOM INC**E238303****SUITE 170 29400 KOHOUTEK WAY, UNION CITY CA 94587**

Class I, Division 2, Groups A, B, C and D.

External modems.

**DISTRIBUTED GENERATION POWER SYSTEMS EQUIPMENT FOR
USE IN HAZARDOUS LOCATIONS (FCHD)****PHOTOVOLTAIC MODULES AND PANELS FOR USE IN HAZARDOUS LOCATIONS
(FCJU)****USE AND INSTALLATION**

This category covers flat-plate photovoltaic modules and panels intended for mounting on buildings or on ground-supported frames. Roof-mounted modules or panels are investigated for one of three mounting methods: (1) integral to the roof of a building, (2) directly on a building's roof, or (3) on a rack with a space above the roof surface.

When mounted integral to a building's roof the module serves as the waterproof membrane. Direct-mounted panels are placed upon the building's waterproof membrane (shingles or the like). Rack-mounted styles are spaced away from the building's roof member. Rack-mounted styles may also be installed separate from buildings.

Installation of modules on or integral to a building's roof system may adversely affect the roof-covering materials' resistance to external fire exposure if the module has a lesser or no fire-resistance rating. Roof-covering materials will not be adversely affected when the modules have an equal or greater fire-resistance rating than the roof-covering material.

Photovoltaic modules and panels are intended to be connected to electrical loads, controllers, or to static inverters that convert the dc power the modules or panels generate to other types of power compatible with the intended loads. In addition to their voltage, current and power ratings, modules and panels are marked to indicate terminal polarity, maximum series overcurrent device rating, and minimum acceptable diode bypassing (if needed). Installation of the modules and panels, including connection between the modules and the panels and the load, static inverters or controller is intended to be in accordance with ANSI/NFPA 70, "National Electrical Code." Authorities Having Jurisdiction should be consulted as to conformance with applicable building codes including the class of roof covering.

When applicable, modules or panels are identified as Class A, B or C to denote their certification for resistance to external fire exposure. Modules or panels that have not been identified with respect to their resistance to external fire exposure are marked "Not Fire Rated." For significance of external fire exposure classes, see Roof-covering Materials (TEVT) and Roofing Systems (TGFU).

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAL).

REQUIREMENTS

Photovoltaic Modules and Panels for Use in Hazardous Locations (FCJU)–Continued

The basic unclassified locations standard used to investigate products in this category is ANSI/UL 1703, “Flat-Plate Photovoltaic Modules and Panels.”

The basic hazardous (classified) locations standards used to investigate products in this category are referenced in Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

ADJUNCT SERVICE

UL provides a service for the certification of photovoltaic modules and panels that not only meet the appropriate requirements of UL but also have been investigated in accordance with one or more of the following design qualification standards:

1. IEEE 1262-(issue date), “IEEE Recommended Practice for Qualification of Photovoltaic (PV) Modules”
2. IEC 61215-(issue date), “Crystalline Silicon Terrestrial Photovoltaic Modules – Design Qualification and Type Approval”
3. IEC 61646-(issue date), “Thin-Film Terrestrial Photovoltaic Modules – Design Qualification and Approval”

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word “LISTED,” a control number, and the product name “Photovoltaic Module for Use in Hazardous Locations” or “Photovoltaic Panel for Use in Hazardous Locations.”

Combination Listing/Classification Mark — A Listing Mark combined with a Classification Mark is provided on products that have additionally been investigated in accordance with IEC or IEEE design qualification standards. The combined Listing/Classification Mark consists of the Listing Mark elements detailed above and the following marking: “ALSO CLASSIFIED IN ACCORDANCE WITH *,” where “*” is one or more of the following:

1. IEEE 1262-(issue date)
2. IEC 61215:(issue date)
3. IEC 61646:(issue date)

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

KYOCERA CORP**E239924**

6 TAKEDA TOBADONO-CHO FUSHIMI-KU, KYOTO 612-8501 JAPAN

Class I, Div. 2 Groups A, B, C and D.

Photovoltaic modules, Models KC 35, KC 40, KC40T, KC 50, KC50T, KC55T, KC 60, KC65T, KC 70, KC 80, KC 80-01, KC85T, KC85TS, KC 110-1, KC 120-1, KC125TM, KC130TM.

Model KDyySE-M, where yy is 50, 55, 70, 75, 80.

Model KDyySE-MA, where yy is 50.

Model KDyySE-MAP, where yy is 50.

Model KDyySE-MP, where yy is 50, 55, 70, 75, 80.

Model KDyySE-U, where yy is 50, 55, 70, 75, 80.

Model KDyySE-UA, where yy is 50.

Model KDyySE-UAP, where yy is 50.

Model KDyySE-UP, where yy is 50, 55, 70, 75, 80.

Model KDwwSX-M, where ww is 40, 45, 50, 55, 60, 65, 70, 85, 90, 95.

Model KDwwSX-MP, where ww is 40, 45, 50, 55, 60, 65, 70, 85, 90, 95.

Model KDwwwSX-MPU, where www is 130, 132, 133, 135.

Model KDwwwSX-MU, where www is 130, 132, 133, 135.

Model KDwwSX-U, where ww is 40, 45, 50, 55, 60, 65, 70, 85, 90, 95.

Model KDzzzSX-UFB, where zzz is 130, 135, 140, 145, 150.

Model KDzzzSX-UFB, where zzz is 130, 135, 140, 145, 150.

Model KDzzzSX-UFU, where zzz is 130, 135, 140, 145, 150.

Model KDwwSX-UP, where ww is 40, 45, 50, 55, 60, 65, 70, 85, 90, 95.

Model KDwwwSX-UPU, where www is 130, 132, 133, 135, 140, 145, 150.

Model KDwwwSX-UU, where www is 130, 132, 133, 135.

DOOR HOLDERS FOR USE IN HAZARDOUS LOCATIONS (FDGF)**GENERAL**

This category covers door holders for fire doors intended for installation in accordance with ANSI/NFPA 80, “Fire Doors and Other Opening Protectives.”

They are intended for use with swinging, sliding or rolling fire doors, as indicated in the individual certifications, and are designed to hold doors in the open position under normal usage and release the doors under fire conditions. They are intended to be used with a suitable door closer and automatic operating devices or systems.

Authorities Having Jurisdiction should be consulted to determine the acceptability of the door, door holders, door closer and automatic operating device or other combination of system units for any given location.

RELATED PRODUCTS

Automatic operating devices or systems consist of releasing devices of heat detectors for releasing device service and are covered under Heat Detectors for Releasing Device Service for Use in Hazardous Locations (TBGR).

For information on door closers, see Fire Door Accessories (GVUW) and Fire Door Closers, Holders and Operators (GTBT).

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic unclassified locations standard used to investigate products in this category is UL 228, “Door Closers-Holders, With or Without Integral Smoke Detectors.”

The basic hazardous (classified) locations standards used to investigate products in this category are referenced in Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word “LISTED,” a control number, and the product name “Door Holder for Use in Hazardous Locations.”

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

ASTERIX SECURITY HARDWARE INTERNATIONAL INC**E146590**

UNIT 10 7045 TRANMERE DR, MISSISSAUGA, ON L5S

1M2 CANADA

Class I, Division 2.**Electromagnetic door holders**, Models 171HK, 172HD, 173HD, 175HD, 176HD, 1732HD, ZB171HD, ZB172HD.

For indoor use only. Use supply connections suitable for at least 75°C.

RIXSON-FIREMARK, DIV OF YALE SECURITY INC**E100740**

9100 W BELMONT AVE, FRANKLIN PARK IL 60131

Class I, Division 2; Class II, Division 2; Groups F and G; Class III.**Electromagnetic door holder**, Model FM991 rated 0.068 A, 24 V dc; 0.180 A, 12 V dc; 0.017 A, 120 V ac; 0.080 A, 24 V ac; 0.140 A, 12 V ac; 0.009 A, 250 V ac, 277 V ac.

For use with swinging fire doors.

DRILLING EQUIPMENT FOR USE IN HAZARDOUS LOCATIONS (FDJZ)

This category covers products specifically intended for installation on oil rigs and drilling platforms.

DRILLING INSTRUMENTATION FOR USE IN HAZARDOUS LOCATIONS (FDKX)

USE AND INSTALLATION

This category covers drilling equipment consisting of instruments, sensors and transducers intended to measure, record and monitor drilling variables and to control the drilling process.

These products have been investigated for potential conformity to the installation and use provisions of ANSI/NFPA 70, "National Electrical Code," or United States Coast Guard Electrical Engineering Regulations, Subchapter J, (Title 46CFR (Parts 110-113 inclusive), "Electrical Engineering."

Intrinsically safe circuits and equipment are intended to be installed and interconnected in accordance with the instructions provided.

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic unclassified locations standard used to investigate products in this category is UL 61010C-1, "Process Control Equipment."

The basic hazardous (classified) locations standards used to investigate products in this category are referenced in Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Drilling Instrumentation for Hazardous Locations" or "Drilling Instrumentation (Associated Apparatus)," or other appropriate product name as shown in the individual Listings.

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

ARGO INTERNATIONAL CORP**E104588**

302 W 38TH ST, HOUSTON TX 77018

Class I, Groups C and D.

Foot throttles.

M/D TOTCO NOV, DIV OF NATIONAL OILWELL VARCO**E139543**

LLP

1200 CYPRESS CREEK RD, CEDAR PARK TX 78613

Associated Apparatus, Nonhazardous Locations.

Tracer display. Provides connections for intrinsically safe circuits for use in hazardous locations, Class I, Groups C and D.

Universal modem module. Provides connections for intrinsically safe circuits for use in hazardous locations, Class I, Groups C and D.

Class I, Groups C and D.

Electronic Rotary Torque System Units:

Associated Apparatus - Signal Conditioner Assembly for use in Class I, Groups C and D hazardous locations and provides connections for intrinsically safe circuits for use in Hazardous Locations, Class I, Groups C and D.

Intrinsically Safe Apparatus - Transducer E/P is intrinsically safe for use in Class I, Groups C and D hazardous locations.

Digital Gauge System Units:

Intrinsically Safe Apparatus - Digital Gauges I, II and III, provides connections for intrinsically safe circuits for use in hazardous locations, Class I, Groups C and D.

Intrinsically Safe Apparatus - Pit level transmitter. Intrinsically safe for use in Class I, Groups C and D.

Intrinsically Safe Apparatus - Level sensor intrinsically safe for use in Class I, Groups C and D.

Intrinsically Safe Apparatus - Ultrasonic level sensor intrinsically safe for use in Class I, Groups C and D.

Intrinsically Safe Apparatus - Meter assembly units intrinsically safe for use in Class I, Groups C and D.

Intrinsically Safe Apparatus - Current transducer intrinsically safe for use in Class I, Groups C and D hazardous locations.

Intrinsically Safe Apparatus - Pressure transmitters intrinsically safe for use in Class I, Groups C and D hazardous locations.

Intrinsically Safe Apparatus - Mud flow sensors intrinsically safe for use in Class I, Groups C and D hazardous locations.

Intrinsically Safe Apparatus - Depth switch intrinsically safe for use in Class I, Groups C and D hazardous locations.

Intrinsically Safe Apparatus - Proximity sensor intrinsically safe for use in Class I, Groups C and D hazardous locations.

Intrinsically Safe Apparatus - Magnetic probe intrinsically safe for use in Class I, Groups C and D hazardous locations.

Intrinsically Safe Apparatus - Pump stroke switch intrinsically safe for use in Class I, Groups C and D hazardous locations.

Intrinsically Safe Apparatus - Drilling recorder interface switch; drillers calibration switch box, intrinsically safe for use in Class I, Groups C and D hazardous locations.

Associated Apparatus - CID when used with a Type X purge. Provides connections for intrinsically safe circuits for use in hazardous locations, Class I, Groups C and D.

Intrinsically Safe Apparatus - Loop powered transducers. Intrinsically safe for use in Class I, Groups C and D.

Intrinsically Safe Apparatus - Spectrum Display, intrinsically safe for use in Class I, Groups C and D.

**Documents**

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Drilling Instrumentation for Use in Hazardous Locations (FDKX)–Continued

Intrinsically Safe Apparatus - Current Loop Gauge Meter, intrinsically safe for use in Class I, Groups C and D.

Intrinsically Safe Apparatus – Strain Gauge Transducers, intrinsically safe for use in Class I, Division 1, Groups C and D.

Class I, Division 2, Groups C and D.

Line monitors.

NT Tracer for use in Class I, Division 2, Groups C and D Hazardous Locations.

Associated Apparatus - DAQ. Provides connections for intrinsically safe circuits for use in hazardous locations, Class I, Groups C and D.

Associated Apparatus - DAQ (barrierless). Using the T Pot/Universal Modem Module, provides a connection for intrinsically safe circuits for use in hazardous locations, Class I, Groups C and D.

Associated Apparatus - Horn control box. Provides connections for intrinsically safe circuits for use in hazardous locations, Class I, Groups C and D.

Associated Apparatus - CID when used with a Type Z purge. Provides connections for intrinsically safe circuits for use in hazardous locations, Class I, Groups C and D.

Class I, Groups A, B, C, and D.

Kickmaster choke position indicator system consists of the following units:

Associated Apparatus - Interface assembly for use in Class I, Groups A, B, C, and D hazardous locations and provides intrinsically safe circuit connections.

Intrinsically Safe Apparatus - Meter assembly; sensor assembly, intrinsically safe for use in Class I, Groups A, B, C, and D hazardous locations.

SWACO, DIV OF MILLC**E106930**

8029 DIXIE HWY PO BOX 1509, FLORENCE KY 41022

Intrinsically safe, Class I, Group D.

Digital pump rate meter/counters.

MARINE SHIPBOARD CABLE SEALING FITTINGS FOR USE IN HAZARDOUS LOCATIONS (FDLW)**USE**

This category covers combination termination and sealing fittings for threaded connection of marine shipboard cable to equipment in hazardous locations. They are intended for use only with the sealing compound specified by the manufacturer in instructions furnished with the fittings. No splices of conductors are permitted to be made in the fitting. Restrictions on application, position, and/or location of the sealing fitting are indicated in the manufacturer's instructions.

These fittings are intended for use on mobile offshore oil rigs and drilling platforms. The investigation of these fittings includes an evaluation for conformity to the installation and use provisions of United States Coast Guard Electrical Engineering Regulations 46CFR110, "General Provisions," 46CFR111, "Electrical Systems – General Requirements," 46CFR112, "Emergency Lighting and Power Systems," and 46CFR113, "Communication and Alarm Systems and Equipment," as applied by the Authority Having Jurisdiction.

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic standard used to investigate products in this category is ANSI/UL 2225, "Cables and Cable Fittings for Use in Hazardous (Classified) Locations."

UL MARK

The Listing Mark of UL on the product, or the UL symbol on the product and the Listing Mark on the smallest unit container in which the product is packaged is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Marine Shipboard Cable Sealing Fitting for Use in Hazardous Locations."

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

COOPER CAPRI SAS**E324850**

36 RUE DES FONTENILS 41600, NOUAN LE FUZELIER FRANCE

Class I, Division 1, Groups A, B, C and D; Class II, Division 1, Groups E, F and G.

Cable sealing fittings, for use only with manufacturer's Type TSC sealing compound: Series ADE followed by 6FC, followed by No. 5, 6, 7, 8, 9, 10 or 11, may be followed by the letters SL, for vertical or horizontal mounting, thread sizes 1/2 to 2 in. NPT inclusive or M20 to M50 inclusive.

These fittings are intended for installation on mobile offshore oil rigs and drilling platforms in accordance with the Ship Safety Electrical Standards, TP127E, Section 26, Subsections 7(a) and 7(b) as applied by the authority having jurisdiction. These fittings are intended for installation on mobile offshore oil rigs and drilling platforms in accordance with Subpart 111.60 of the United States Coast Guard Electrical Engineering Regulations, Subchapter J (Title 46 of Federal Regulations, Parts 110 to 113 inclusive) as applied by the Authority Having Jurisdiction.

COOPER CROUSE-HINDS**E309542**

WOLF & 7TH NORTH ST PO BOX 4999, SYRACUSE NY 13221

Class I, Division 1, Groups A, B, C and D.

Cable sealing fitting, for use only with manufacturer's Designation "Kneadaseal" sealing compound: Cat. No. TULA, followed by B or S, may be followed by R, followed by 16, 20S, 20, 25, 32, 40, 50S, 50, 63S, 63, 75S, or 75; followed by M20, M25, M32, M40, M50, M63, M75, 1/2NPT, 3/4 NPT, 1 NPT, 1-1/4 NPT, 2 NPT, 2-1/2 NPT, or 3 NPT; conduit sizes 1/2 in. through 3 in. and M16 through M75 for vertical or horizontal mounting. These fittings are intended for installation on mobile offshore oil rigs and drilling platforms in accordance with Subpart 111.60 of the United States Coast Guard Electrical Engineering Regulations, Subchapter J (Title 46 of Federal Regulations, Parts 110 to 113 inclusive) as applied by the authority having jurisdiction.

Class I, Division 2, Groups A, B, C, and D.

Cable sealing fitting, for use only with manufacturer's Designation "Kneadaseal" sealing compound: Cat. No. TULU, followed by B or S, followed by 16, 20S, 20, 25, 32, 40, 50S, 50, 63S, 63, 75S, or 75; followed by M20, M25, M32, M40, M50, M63, M75, 1/2NPT, 3/4 NPT, 1 NPT, 1-1/4 NPT, 2 NPT, 2-1/2 NPT, or 3 NPT; conduit sizes 1/2 in. through 3 in. and M16 through M75 for vertical or horizontal mounting. These fittings are intended for installation on mobile offshore oil rigs and drilling platforms in accordance with Subpart 111.60 of the United States Coast Guard Electrical Engineering Regulations, Subchapter J (Title 46 of Federal Regulations, Parts 110 to 113 inclusive) as applied by the authority having jurisdiction.



Documents

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Marine Shipboard Cable Sealing Fittings for Use in Hazardous Locations (FDLW)–Continued

HAWKE INTERNATIONAL, DIV OF HUBBELL LTD**E84941**

OXFORD ST W, ASHTON-UNDER-LYNE, LANCASHIRE OL7

ONA UNITED KINGDOM

Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III.

Cable sealing fitting. Series 753, S753, Cat. Nos. 1/2 in. 0s, 1/2 in. 0, 1/2 in. A, 3/4 in. A, 3/4 in. B, 1 in. B, 1 in. C, 1-1/4 in. C, 1-1/4 in. C2, 1-1/2 in. C2, 1-1/2 in. D, 2 in. D, 2 in. E, 2-1/2 in. E, 2-1/2 in. F, 3 in. F, conduit sizes 1/2 in. to 3 in. and M16 to M75 incl. For use only with marine shipboard cable employing copper, bronze, aluminum or steel grounding braid. For use only with manufacturer's sealing compounds: ST 574 or BicaSeal. These fittings are intended for installation on mobile offshore oil rigs and drilling platforms in accordance with Sub-part 111.60 of the United States Coast Guard Electrical Engineering Regulations, Subchapter J (Title 46 of Federal Regulation, Parts 110 to 113 incl.) as applied by the Authority Having Jurisdiction.

Type 753, Cat. Nos. 1/2 in. 0s, 1/2 in. 0, 3/4 in. A, 1/2 in. A-RE, 1 in. B, 3/4 in. B-RE, 1-1/4 in. C, 1 in. C-RE, 1-1/2 in. C2, 2 in. D, 2-1/2 in. E, 3 in. F, 3-1/2 in. H, conduit sizes 1/2 in. to 3-1/2 in. and M20 to M90 incl.

Class I, Groups A, B, C and D.

Cable sealing fitting. Types 752, 753, Cat. Nos. 2 in. D, 2-1/2 in. E, 3 in. F, 3-1/2 in. H, conduit sizes 2 in. to 3-1/2 in. and M50 to M90 incl.

Class I, Division 2; Groups A, B, C and D; Class II, Division 2, Groups F and G; Class III, Division 2.

Cable sealing fitting. Type 752, Cat. Nos. 1/2 in. 0, 3/4 in. A, 1/2 in. A-RE, 1 in. B, 3/4 in. B-RE, 1-1/4 in. C, 1 in. C-RE, 1-1/2 in. C2, 2 in. D, 2-1/2 in. E, 3 in. F, 3-1/2 in. H, conduit sizes 1/2 in. to 3-1/2 in. and M20 to M90 incl.

PEPPERS CABLE GLANDS LTD**E248936**

STANHOPE RD, CAMBERLEY, SURREY GU15 3BT UNITED KINGDOM

Class I, Division 1, Groups A, B, C and D.

Cable sealing fitting. for use only with manufacturer's Designation "Kneadaseal" sealing compound: Cat. No. UL-C, followed by B or S, may be followed by R, followed by 16, 20S, 20, 25, 32, 40, 50S, 50, 63S, 63, 75S, or 75; followed by M20, M25, M32, M40, M50, M63, M75, 1/2NPT, 3/4 NPT, 1 NPT, 1-1/4 NPT, 2 NPT, 2-1/2 NPT, or 3 NPT; conduit sizes 1/2 in. through 3 in. and M16 through M75 for vertical or horizontal mounting. These fittings are intended for installation on mobile offshore oil rigs and drilling platforms in accordance with Subpart 111.60 of the United States Coast Guard Electrical Engineering Regulations, Subchapter J (Title 46 of Federal Regulations, Parts 110 to 113 inclusive) as applied by the authority having jurisdiction.

Class I, Division 2, Groups A, B, C, and D.

Cable sealing fitting. for use only with manufacturer's Designation "Kneadaseal" sealing compound: Cat. Nos. UL-U and UL-X, followed by B or S, followed by 16, 20S, 20, 25, 32, 40, 50S, 50, 63S, 63, 75S, or 75; followed by M20, M25, M32, M40, M50, M63, M75, 1/2NPT, 3/4 NPT, 1 NPT, 1-1/4 NPT, 2 NPT, 2-1/2 NPT, or 3 NPT; conduit sizes 1/2 in. through 3 in. and M16 through M75 for vertical or horizontal mounting. These fittings are intended for installation on mobile offshore oil rigs and drilling platforms in accordance with Subpart 111.60 of the United States Coast Guard Electrical Engineering Regulations, Subchapter J (Title 46 of Federal Regulations, Parts 110 to 113 inclusive) as applied by the authority having jurisdiction.

PRYSMIAN CABLES & SYSTEMS LTD**E77129**

OAK ROAD WREXHAM INDUSTRIAL ESTATE, WREXHAM, WREXHAM LL13 9PH UNITED KINGDOM

Class I, Groups A, B, C and D; Class II, Groups E, F and G.

Cable sealing fitting. Type BARR-DX, Cat. Nos. AB424-UL-01, -02, -12; Type BARR-X, Cat. Nos. AB424-AN-01, -02, -10, -12; Type BARR-A, Series BARR-UB, Cat. Nos. AB424-UB-01, 02, -03 for vertical or horizontal mounting, conduit sizes 1/2, 3/4 in.

Class I, Groups C and D; Class II, Groups E, F and G.

Cable sealing fitting. Type BARR-DX, Cat. Nos. 424-UL-03 to -09 incl., -15; Type BARR-X, Cat. Nos. 424-AN-03 to -09 incl., -15; Type BARR-A, Series BARR-UB, Cat. No. 424-UB followed by -01, -02, -03, -04, -05, -06, -07, -08, -09 or -15, for vertical or horizontal mounting, conduit sizes 1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 3-1/2 in.

All BARR-A, BARR-DX and BARR-X fittings are for use only with the manufacturer's BicaSeal sealing compound and are for installation on mobile offshore oil rigs and drilling platforms in accordance with sub-part 111.60 of the United States Coast Guard Electrical Engineering regulations, Subchapter J (Title 46 of Federal Regulations, parts 110 to 113 incl.) as applied by the authority having jurisdiction.

ELECTRIC LAMP CONTROL EQUIPMENT FOR USE IN HAZARDOUS LOCATIONS (FNTR)**BALLASTS FOR USE IN HAZARDOUS LOCATIONS (FOGZ)****USE**

This category covers alternating-current ballasts for high-intensity-discharge lamps. The power factor indicated can be considered as the approximate power factor under normal operating conditions.

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic standard used to investigate products in this category is ANSI/UL 844, "Luminaires for Use in Hazardous (Classified) Locations."

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Ballast for Use in Hazardous Locations."

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

HUBBELL LIGHTING INC, SUB OF HUBBELL INC**E196168**

701 MILLENNIUM BLVD, GREENVILLE SC 29607

Class I, Groups A, B, C and D; Division 2.

ELECTROMAGNETS FOR USE IN HAZARDOUS LOCATIONS (FOOM)**USE AND INSTALLATION**

This category covers electromagnets, including electromagnetic separators, used to generate magnetic fields

**Documents**

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Special care should be taken to ensure suspended electromagnets are installed in accordance with the manufacturer's instructions, and that they are suspended from beams or cables with adequate strength.

Some types of electromagnetic separators use moving belts to move items out of the magnetic field. Special care should be taken to ensure that these products are installed in accordance with the manufacturer's instructions, and that guarding is provided on moving parts in accordance with local codes.

RELATED PRODUCTS

Electromagnetic interference filters used to attenuate unwanted radio frequency signals are covered under Electromagnetic Interference Filters (FOKY).

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic hazardous (classified) locations standards used to investigate products in this category are referenced in Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Electromagnet for Use in Hazardous Locations," or other appropriate product name as shown in the individual Listings.

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

ERIEZ MAGNETICS

E53582

2200 ASBURY RD, ERIE PA 16506

Class I, Groups C and D; Class II, Groups E, F and G.

Electromagnets, Models 735, 745, 755, 765 followed by suffix U or USC.

Class I, Division 2, Groups B, C and D.

Electromagnet, Model 100-50.

Electromagnetic filter, Model 200-50.

ELEVATOR EQUIPMENT FOR USE IN HAZARDOUS LOCATIONS (FRZV)

This category covers hoistway door interlocks, hoistway limit switches, hoistway-door combination mechanical locks and electric contacts, hoistway-door or car door or gate electric contacts, and elevator control panels.

ELEVATOR CONTROL PANELS FOR USE IN HAZARDOUS LOCATIONS (FSNA)

USE

This category covers elevator control panels consisting of assemblies of equipment intended to control elevators, dumbwaiters, escalators, moving walks, inclined lifts, and their associated equipment.

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic hazardous (classified) locations standards used to investigate products in this category are referenced in Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

Where indicated in the individual certifications, elevator control panels have also been investigated to ANSI/ASME A17.1, "Safety Code for Elevators and Escalators," and ANSI/ASME A17.5, "Elevator and Escalator Electrical Equipment."

UL MARK

The Classification Mark of UL on the product is the only method provided by UL to identify products manufactured under its Classification and Follow-Up Service. The Classification Mark for these products includes the UL symbol, the word "CLASSIFIED" above the UL symbol (as illustrated in the Introduction of this Directory), and the following additional information:

**ELEVATOR CONTROL PANEL FOR USE IN HAZARDOUS LOCATIONS
AS TO ELECTRICAL SHOCK, EXPLOSION AND FIRE HAZARD ONLY**

Issue No.

Where indicated in the individual Classifications, the Classification Mark will also include the statement:

ALSO CLASSIFIED IN ACCORDANCE WITH ANSI/ASME A17.1-(date) AND ANSI/ASME A17.5-(date)

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

MID-AMERICAN ELEVATOR CO INC

E317912

820 N WOLCOTT AVE, CHICAGO IL 60622

Class I, Groups A, B, C and D.

Purged and pressurized (Type X) elevator control panels. May provide intrinsically safe circuit extensions for use in Class I, Groups A, B, C and D; Class II, Groups E, F and G.

Class I, Division 2, Groups A, B, C and D.

Purged and Pressurized (Type Z) elevator control panels. May provide intrinsically safe circuit extensions for use in Class I, Groups A, B, C and D; Class II, Groups E, F and G.

ELEVATOR DOOR-LOCKING DEVICES AND CONTACTS FOR USE IN HAZARDOUS LOCATIONS (FSNT)

GENERAL

This category covers devices designed for use in elevators and intended for installation and operation in accordance with the requirements of ANSI/ASME A17.1, "Safety Code for Elevators and Escalators."

Elevator hoistway door interlocks are intended to prevent the operation of the driving machine by the normal operating device unless the hoistway door is locked in the closed position, and to prevent the opening of the hoistway door from the landing side unless the door is within the landing zone and is either stopped or being stopped.

Elevator Door-locking Devices and Contacts for Use in Hazardous Locations (FSNT)–Continued

Interlocks that do not require the use of a retiring cam bear the product name (A) under **PRODUCT IDENTITY**.

Interlocks that require the use of a retiring cam bear the product name (B) under **PRODUCT IDENTITY**.

This category does not cover retiring cams. Their acceptability must be determined at the point of installation by the Authority Having Jurisdiction.

Elevator hoistway door combination mechanical locks and electric contacts are intended to prevent operation of the driving machine by the normal operating device unless the hoistway door is in the closed position, and to lock the hoistway door in the closed position and prevent it from being opened from the landing side unless the car is within the landing zone. These locks and contacts bear the product name (C) under **PRODUCT IDENTITY**.

Elevator hoistway door, car door or gate electric contacts are intended to prevent operation of the driving machine by the normal operating device unless the door or gate is in the closed position. These contacts bear the product name (D) under **PRODUCT IDENTITY**.

These devices have been investigated for misalignment conditions when properly installed as recommended by the manufacturer. Their acceptability is to be determined at the point of installation by the Authority Having Jurisdiction.

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic hazardous (classified) locations standards used to investigate products in this category are referenced in Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and one of the following product names as appropriate:

(A) "Elevator Interlock for Hazardous Locations"

(B) "Elevator Interlock for Hazardous Locations – Retiring Cam Required"

(C) "Elevator Combination Mechanical Lock and Electric Contact for Hazardous Locations"

(D) "Elevator Electric Contact for Hazardous Locations"

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

COMPREHENSIVE MFG SERVICES L L C, DBA COURION

E12493

3044 LAMBDIN AVE, ST LOUIS MO 63115

Class I, Group C.

Class I, Groups C and D; Class II, Groups E, F and G.

Interlocks, combination mechanical lock and contact, Cat. Nos. XFE, XFE-1, XHE, XHE-1, XHE-2.

Elevator gate switch, Type QGSE and limit switches, Types QLSE, QLSE2.

Elevator interlock switches, Models QIME, QIPE.

Hoistway door lock switch, Model QLCE.

G A L MFG CORP

E42528

50 E 153RD ST, BRONX NY 10451

Class I, Group D.

Interlocks.

THE PELLE CO

E14595

#311 373 NESCONSET HWY, HAUPPAUGE NY 11788

Class I, Group D; Class II, Groups F and G.

Interlocks, combination mechanical lock and contact, contacts.

ENERGY AND INDUSTRIAL SYSTEMS CERTIFIED FOR FUNCTIONAL SAFETY (FSPC)

GENERAL

This category covers energy and industrial systems, such as photovoltaic systems, wind turbines, power conversion equipment, utility interactive devices, motor controllers, battery management systems, battery chargers, proximity switches, elevator control panels, etc., that have been certified for functional safety.

Functional safety relates to all functions, such as control, protection and monitoring, that are intended to reduce the risk of fire, electric shock or injury to persons.

Functional-safety investigations cover a product's programmable electronics (i.e., hardware and embedded software), but also products with hardware-implemented functions only.

Software may be the embedded instructions that reside in a programmable component and that perform some of the functions of the product under investigation. Software may be application-specific, i.e., the software is limited to a specific, dedicated, designated use. The software to be investigated may include operating systems, support tools, firmware and application systems.

In addition to electronic hardware and software, functional-safety investigations may include other technologies such as mechanical, hydraulic, pneumatic, and combinations thereof.

Functional-safety investigations may also be conducted for systems and/or subsystems of multiple products. These investigations often include the following elements:

- Review of the engineering documentation produced during the development, operation and maintenance of the product or system
- Risk analysis, including Hazard-based Safety Engineering (HBSE) Analysis
- Safety life-cycle management

The functional-safety investigation may result in attributing functional-safety ratings such as a safety integrity level (SIL) or performance level (PL) to the different safety-related functions. It is the responsibility of the customer to determine and specify these safety functions, the functional-safety standards to which the products are intended to be certified, and the desired functional-safety ratings.

The product manual and individual Listing should be consulted for detailed information and instructions about a particular product.

ABBREVIATIONS AND TERMS

The following abbreviations and terms are used in the individual Listings:



Documents

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Abbreviation/Term	Definition
ASIL	Automotive safety integrity level — One of four levels (A through D) to specify an item's or element's necessary requirements of ISO / Draft International Standard 26262-1 through 26262-10, and safety measures for avoiding an unreasonable residual risk, with "D" representing the most stringent level and "A" the least stringent level.
Beta Factor Category	The measure for susceptibility of Common Cause Failure (see CCF below). Classification of the safety-related parts of a control system with respect to their resistance to faults and their subsequent behavior in the fault condition, and which is achieved by the structural arrangement of the parts and / or their reliability. There are five categories (b, 1, 2, 3, 4) with "b" representing the lowest level of resistance and "4" representing the highest level of resistance.
CCF	Common cause failure — Failure as the result of one or more events, causing concurrent failures of two or more separate channels in a multiple-channel system, leading to system failure.
Class	ANSI/UL 1998 defines software classes: Software Class 1 : Sections of software intended to control function to reduce the likelihood of a risk associated with the equipment. Examples of sections that may be considered Software Class 1 functions are thermal cutouts and door locks for laundry equipment. Software Class 2 : Sections of software intended to control functions to reduce the likelihood of special risks (e.g., explosion) associated with the equipment. Examples of sections that may be considered Software Class 2 functions are automatic burner controls and thermal cutouts for closed water-heater systems (unvented).
Diagnostic Coverage	The measure of the effectiveness of diagnostics, which may be determined as the ratio between the failure rate of detected dangerous failures and the failure rate of total dangerous failures. Instead of a precise percentage value, EN ISO / ISO 13849-1 defines four percentage ranges for diagnostic coverage: None, Low, Medium and High.
HFT	Hardware fault tolerance — The ability of a system to continue nonstop when a hardware failure occurs. 0 = susceptible at a single fault 1 = susceptible at two faults 2 = susceptible at three faults
MTTF_d	Mean time to failure (dangerous) — A measure of reliability of a piece of equipment, given the average time before the first failure.
PFD_{avg}	Average probability of a dangerous failure on demand of the safety function — Safety unavailability of an electrical / electronic / programmable electronic (E / E / PE) safety-related system to perform the specified safety function when a demand occurs from the equipment under control (EUC) or EUC control system.
PFH_{avg}	Average frequency of a dangerous failure of the safety function per hour — The average frequency of a dangerous failure of an E / E / PE safety-related system to perform the specified safety function over a given period of time.
PL	Performance level — A discrete level used to specify the ability of safety-related parts of a control system to perform a safety function under foreseeable conditions. There are five levels (a through e), with "a" representing the lowest ability level and "e" the highest ability level.
SFF	Safe failure fraction — The property of a safety-related element defined by the ratio of the average failure rates of safe plus dangerous detected failures and safe plus dangerous failures.
SIL	Safety integrity level — A discrete level (one out of a possible four) corresponding to a range of safety integrity values, where safety integrity level 4 has the highest level of safety integrity and safety integrity level 1 has the lowest.
SIL Capability	Defined by EN / IEC 61800-5-2: The maximum SIL that can be claimed to have been achieved by the design of a power drive system suitable for use in safety-related applications in terms of the systematic safety integrity and the architectural constraints on hardware safety integrity. There are three levels, where SIL capability 3 has the highest level of safety integrity and SIL capability 1 has the lowest. Certification of a safety function to a certain SIL capability will, in addition to systematic safety integrity and architectural constraints, also include the PFH of the safety function.
SIL CL	SIL Claim Limit — Defined by EN / IEC 62061: The maximum SIL that can be claimed for a safety-related subsystem in relation to architectural constraints and systematic safety integrity. There are three levels, where SIL claim limit 3 has the highest level of safety integrity and SIL claim limit 1 has the lowest. Certification of a safety function to a certain SIL claim limit will, in addition to systematic safety integrity and architectural constraints, also include the PFH of the safety function.
Type	Defined by ANSI / UL 61496-1: A measure of performance (2, 3 or 4) of electro-sensitive protective equipment in the presence of faults and under influences from environmental conditions. Types 2, 3 and 4 are similarly defined as the Categories 2, 3 and 4 of EN / ISO 13849-1, respectively.

ADDITIONAL INFORMATION

For additional information, see Electrical Equipment for Use in Ordinary Locations (AALZ), Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ), Marine Products (AAMP) and Mechanical Equipment and Associated Products (AAME).

REQUIREMENTS

The following standards are used to investigate products in this category for functional safety, as noted in the individual Listings.

UL 991 (2004), "Tests for Safety-Related Controls Employing Solid-State Devices"

ANSI/UL 1998 (1998), "Software in Programmable Components" (used in conjunction with UL 991 for products that include software)

ANSI/UL 61496-1 (2007), "Electro-Sensitive Protective Equipment, Part 1: General Requirements and Tests"

ANSI/ASME A17.1/CSA B44 (2007), "Safety Code for Elevators and Escalators"

EN 50271 (2010), "Electrical Apparatus for the Detection and Measurement of Combustible Gases, Toxic Gases or Oxygen – Requirements and Tests for Apparatus Using Software and/or Digital Technologies"

IEC 60335-1 (2010), "Household and Similar Electrical Appliances – Safety – Part 1: General Requirements"

IEC 60730-1 (2010), "Automatic Electrical Controls for Household and Similar Use – Part 1: General Requirements"

EN/IEC 61508-1 (2010), "Functional Safety of Electrical/Electronic/Programmable Electronic Safety-Related Systems – Part 1: General Requirements"

EN/IEC 61508-2 (2010), "Functional Safety of Electrical/Electronic/Programmable Electronic Safety-Related Systems – Part 2: Requirements for Electrical/Electronic/Programmable Electronic Safety-Related Systems"

EN/IEC 61508-3 (2010), "Functional Safety of Electrical/Electronic/Programmable Electronic Safety-Related Systems – Part 3: Software Requirements"

EN/IEC 61508-4 (2010), "Functional Safety of Electrical/Electronic/Programmable Electronic Safety-Related Systems – Part 4: Definitions and Abbreviations"

EN/IEC 61508-5 (2010), "Functional Safety of Electrical/Electronic/Programmable Electronic Safety-Related Systems – Part 5: Examples of Methods for the Determination of Safety Integrity Levels"

EN/IEC 61508-6 (2010), "Functional Safety of Electrical/Electronic/Programmable Electronic Safety-Related Systems – Part 6: Guidelines on the Application of IEC 61508-2 and IEC 61508-3"

EN/IEC 61508-7 (2010), "Functional Safety of Electrical/Electronic/Programmable Electronic Safety-Related Systems – Part 7: Overview of Techniques and Measures"

EN/IEC 61511-1 (2003), "Functional Safety – Safety Instrumented Systems for the Process Industry Sector – Part 1: Framework, Definitions, System, Hardware and Software Requirements"

EN/IEC 61511-2 (2003), "Functional Safety – Safety Instrumented Systems for the Process Industry Sector – Part 2: Guidelines for the Application of IEC 61511-1"

EN/IEC 61511-3 (2003), "Functional Safety – Safety Instrumented Systems for the Process Industry Sector – Part 3: Guidance for the Determination of the Required Safety Integrity Levels"

EN/IEC 61800-5-2 (2007), "Adjustable Speed Electrical Power Drive Systems – Part 5-2: Safety Requirements – Functional"

EN/IEC 62061 (2005), "Safety of Machinery – Functional Safety of Safety-Related Electrical, Electronic, and Programmable Electronic Control Systems"

EN ISO/ISO 13849-1 (2006), "Safety of Machinery – Safety-Related Parts of Control Systems – Part 1: General Principles for Design"

ANSI/RIA/ISO 10218-1 (2007), "Robots for Industrial Environments – Safety Requirements – Part 1: Robot"

ISO/Draft International Standard 26262-1 (2009), "Road Vehicles – Functional Safety – Part 1: Vocabulary"

ISO/Draft International Standard 26262-2 (2009), "Road Vehicles – Functional Safety – Part 2: Management of Functional Safety"

ISO/Draft International Standard 26262-3 (2009), "Road Vehicles – Functional Safety – Part 3: Concept Phase"

ISO/Draft International Standard 26262-4 (2009), "Road Vehicles – Functional Safety – Part 4: Product Development: System Level"

ISO/Draft International Standard 26262-5 (2009), "Road Vehicles – Functional Safety – Part 5: Product Development: Hardware Level"

ISO/Draft International Standard 26262-6 (2009), "Road Vehicles – Functional Safety – Part 6: Product Development: Software Level"

ISO/Draft International Standard 26262-7 (2009), "Road Vehicles – Functional Safety – Part 7: Production and Operation"

ISO/Draft International Standard 26262-8 (2009), "Road Vehicles – Functional Safety – Part 8: Supporting Processes"

ISO/Draft International Standard 26262-9 (2009), "Road Vehicles – Functional Safety – Part 9: ASIL-Oriented and Safety-Oriented Analyses"

ISO/Draft International Standard 26262-10 (2009), "Road Vehicles – Functional Safety – Part 10: Guideline"

UL MARK

Products are eligible to bear the UL Functional Safety Mark when a product is investigated for both UL Listing and functional safety.

The Functional Safety Listing Mark of UL on the product, or the UL symbol on the product and the Functional Safety Listing Mark on the smallest unit container in which the product is packaged is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Functional Safety Listing Mark for these products includes the UL symbol with the words "FUNCTIONAL SAFETY" above the UL symbol (as illustrated in the Introduction of this Directory), the word "LISTED," and the following additional information:

[PRODUCT IDENTITY*]**Control No.****ALSO INVESTIGATED TO****[STANDARD** (YEAR+) ***]****See installation manual for safety functions**

* The appropriate product identity as shown in the Listing Mark for the product category

** Where a set of standards is referenced as individual parts (e.g., EN/IEC 61508-1, 61508-2, 61508-3), the standard set is shown in this format: EN/IEC 61508, Parts 1 – 3

† Where individual parts of a set of standards have different edition dates, the latest date is used

*** Safety rating (e.g., SIL 3, PL e, Category 1); may include the words "UP TO" (e.g., UP TO SIL 3)

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HOKUYO AUTOMATIC CO LTD**E345473**

TOYONAKA FACTORY 1-37 KAMISU-CHO, TOYONAKA-SHI,
OSAKA 561-0823 JAPAN

Listed products investigated to ANSI/UL 1998 (1998)

Model No.	Safety Function	Safety Rating	SFF	PHF _{avg}	HFT	Beta Factor	PFD _{avg}	MTTF _d	Diagnostic Coverage	Category	CCF
Type 3 Laser Scanners UAM02LPT3xx (+)	Laser Scanner	Class 2	-	-	-	-	-	-	-	-	-

Listed products investigated to EN/IEC 61508, Parts 1 - 7 (2010)

Model No.	Safety Function	Safety Rating	SFF	PHF _{avg}	HFT	Beta Factor	PFD _{avg}	MTTF _d	Diagnostic Coverage	Category	CCF
Type 3 Laser Scanners											

**Documents**

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Model No.	Safety Function	Safety Rating	SFF	PHF _{avg}	HFT	Beta Factor	PFD _{avg}	MTTF _d	Diagnostic Coverage	Category	CCF
UAM02LPT3xx (+)	Laser Scanner	SIL 2	>90% Medium	7.49 x 10 ⁻⁸	1	2%	5.42 x 10 ⁻⁹	424.64	Low	Category 3	2%

(+) - Also complies with UL 1998, the Standard for Safety Related Software. Also complies with IEC 61508. Also complies with IEC 61508-3.

ELEVATOR EQUIPMENT RELATING TO HAZARDOUS LOCATIONS (FSRA)

ELEVATOR CONTROL PANELS RELATING TO HAZARDOUS LOCATIONS (FSSA)

GENERAL

This category covers elevator control panels consisting of assemblies of equipment intended to control elevators, dumbwaiters, escalators, moving walks, inclined lifts, and their associated equipment.

Elevator control panels relating to hazardous locations are intended for installation in unclassified locations. They are provided with intrinsically safe (low energy) circuit(s) as indicated on the product, for extension into a hazardous (classified) location.

For intrinsically safe circuits, the energy level available in the hazardous location under normal and abnormal conditions is sufficiently low as not to cause ignition of the specified explosive atmospheres. To maintain the low energy levels, it is necessary that the intrinsically safe and associated equipment be installed and interconnected in accordance with the instructions provided. The intrinsically safe circuit wiring must be routed in a separate raceway or otherwise reliably segregated from all power and other circuit wiring to preclude excessive currents and voltages from being impressed on the intrinsically safe circuit, rendering it nonintrinsically safe.

The investigation of elevator control panels relating to hazardous locations does not include investigation of the function of the controlled equipment.

RELATED PRODUCTS

Elevator control panels for use in hazardous (classified) locations are covered under Elevator Control Panels for Use in Hazardous Locations (FSNA).

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic unclassified locations standard used to investigate products in this category is UL 508A, "Industrial Control Panels."

The basic hazardous (classified) locations standard used to investigate products in this category is ANSI/UL 698A, "Industrial Control Panels Relating to Hazardous (Classified) Locations."

Where indicated in the individual Classifications, elevator control panels have also been investigated to ANSI/ASME A17.1, "Safety Code for Elevators and Escalators," and ANSI/ASME A17.5, "Elevator and Escalator Electrical Equipment."

UL MARK

The Classification Mark of UL on the product is the only method provided by UL to identify products manufactured under its Classification and Follow-Up Service. The Classification Mark for these products includes the UL symbol, the word "CLASSIFIED" above the UL symbol (as illustrated in the Introduction of this Directory), and the following additional information:

ELEVATOR CONTROL PANEL RELATING TO HAZARDOUS LOCATIONS WITH INTRINSICALLY SAFE CIRCUIT EXTENSIONS AS TO ELECTRICAL SHOCK, EXPLOSION AND FIRE HAZARD ONLY

Issue No.

Where indicated in the individual Classifications, the Classification Mark will also include the statement:

ALSO CLASSIFIED IN ACCORDANCE WITH ANSI/ASME A17.1-(date) AND ANSI/ASME A17.5-(date)

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

MID-AMERICAN ELEVATOR CO INC
820 N WOLCOTT AVE, CHICAGO IL 60622

E317913

Intrinsically safe circuit extension, Class I, Groups A, B, C, D: Class II, Groups E, F, G: Class III.

EMERGENCY LIGHTING EQUIPMENT FOR USE IN HAZARDOUS LOCATIONS (FTEV)

USE

This category covers automatic transfer switches designed for control of emergency lighting and power circuits in hazardous locations as required by Articles 500 – 503 and 700 of ANSI/NFPA 70, "National Electrical Code." The lighting circuit ratings do not exceed 250 V for tungsten lamps. The investigation of automatic transfer switches includes the determination of their suitability for transferring the load from a normal supply circuit to an immediately available emergency supply circuit.

This category also covers unit equipment, but not separate lamp heads or lighting fixtures (luminaires).

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic standards used to investigate products in this category are ANSI/UL 924, "Emergency Lighting and Power Equipment," and ANSI/UL 844, "Luminaires for Use in Hazardous (Classified) Locations."

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Emergency Lighting Equipment for Use in Hazardous Locations."

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

ACUITY BRANDS LIGHTING INC, DBA LITHONIA**E195682****EMERGENCY SYSTEMS****1 LITHONIA WAY, CONYERS GA 30012**

Class I, Groups A, B, C and D, Division 2 only; Class II, Groups F and G, Division 2 only.
 Class I, Groups C and D; Class II, Groups E, F and G.
 AC Exit signs, Emergency exit luminaires, Emergency exit signs, Unit equipment.
 Class I, Division 2, Groups A, B, C and D.
 Emergency exit equipment/AC fixture.

APPLETON ELECTRIC L L C, SUB OF EGS ELECTRICAL**E175025****GROUP L L C****9377 W HIGGINS RD, ROSEMONT IL 60018**

Class I, Division 2; Class II, Groups F and G; Class II, Division 2, Group G.
 Emergency fluorescent fixtures.
 Class I, Groups C and D; Class II, Groups E, F and G.
 Unit equipment.
 Class I, Groups, A, B, C and D; Division 2.
 Unit equipment.

CHLORIDE, A GENLYTE COMPANY**E68406****272 W STAG PARK SERVICE RD, BURGAW NC 28425**

Class I, Groups C and D; Class II, Groups E, F and G; Class III.
 Class I, Groups C and D; Class II, Groups E, F and G.
 Class I, Groups A, B, C and D, Division 2 only; Class II, Groups F and G, Division 2 only.
 Unit equipment.
 AC Exit Signs.
 Emergency Exit Lights.
 Emergency Exit Signs.
 Emergency Exit Luminaires.
 Emergency exit equipment/AC fixture chloride.
 Emergency exit equipment/AC exit fixture lightguard.

COOPER CROUSE-HINDS**E157551****WOLF & 7TH NORTH ST PO BOX 4999, SYRACUSE NY 13221**

Class I, Groups C and D, Class II, Groups E, F and G and Class III.
 Emergency fluorescent fixtures.
 Class I, Division 2, Groups A, B, C and D.
 Emergency lighting fixtures
 Emergency fluorescent fixtures

COOPER CROUSE-HINDS**E191133****WOLF & 7TH NORTH ST PO BOX 4999, SYRACUSE NY 13221**

Class I, Groups C and D; Class I, Division 2; Class II, Groups F and G, Division 1; Class III, Division 1.
 Emergency lighting equipment.

COOPER CROUSE-HINDS**E79118****WOLF & 7TH NORTH ST PO BOX 4999, SYRACUSE NY 13221**

Class I, Division 2, Groups A, B, C and D, Division 2, Unit equipment.
 Class I, Division 2, Groups B, C and D, Unit equipment.
 Class I, Groups B, C and D; Class II, Groups E, F and G; Class III, Unit equipment.
 Class I, Division 2, Groups A, B, C and D; Class II, Groups E, F and G; Class III, Unit equipment.
 Exit lights.

COOPER LIGHTING, DIV OF COOPER INDUSTRIES INC**E139418****1121 HWY 74 S, PEACHTREE CITY GA 30269**

Class I, Groups C and D; Class II, Groups E, F and G; Class III.
 Unit equipment.
 Class I, Division 2, Groups A, B and D.
 Exit lights, Emergency luminaires, Unit equipment.

DAEYANG ELECTRIC CO LTD**E156128****503 SHINPYEONG-DONG SAHA-KU, PUSAN 604-030 REPUBLIC OF KOREA**

Class I, Groups C and D.
 Class I, Division 2, Groups A, B, C and D.
 Unit equipment.

DAY-BRITE LIGHTING, DIV OF GENLYTE THOMAS**E183554****GROUP L L C****776 S GREEN ST, TUPELO MS 38804**

Class I, Division 2; Class II, Groups F and G; Class II, Division 2, Group G.
 Class I, Division 2 only.
 Emergency fluorescent fixtures.
 Class I, Groups C and D; Class II, Groups E, F and G.
 Class I, Groups A, B, C and D, Division 2 only; Class II, Groups F and G, Division 2 only.
 Unit equipment.

GE LIGHTING SOLUTIONS L L C**E12574****3010 SPARTANBURG HWY, EAST FLAT ROCK NC 28726****Documents**

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Class I, Groups C and D, Class II; Groups E, F and G; Class III.
Unit equipment.

GLAMOX CANADA INC**E185495****4TH FL 20 CROSBIE PL, ST JOHN'S, NL A1B 3Y8 CANADA**

Class I, Division 2; Class II, Groups F and G, Division 2; Class III.
Class I, Division 2; Groups A, B, C and D.
Emergency fluorescent fixtures.

HIGH-LITES**E159378****5 TECHNOLOGY DR, WALLINGFORD CT 06492**

Class I, Groups C and D; Class II, Groups E, F and G.
Unit equipment.
Class I, Groups A, B, C and D, Division 2 only; Class II, Groups F and G, Division 2 only.
AC exit signs.
Emergency exit signs.
Emergency exit luminaires.
Unit equipment, Unit equipment, 6 volts, Unit equipment, 12 volts.
Class I, Div. 2, Groups A, B, C and D.
Emergency exit equipment/AC fixtures.

HOLOPHANE, DIV OF ACUITY BRANDS LIGHTING INC**E167236****HOLOPHANE GRANVILLE BUSINESS PARK BLDG F 3825****COLUMBUS RD SW, GRANVILLE OH 43023**

Class I, Groups C and D; Class II, Groups E, F and G; Class III.
Emergency exit lights.
Class I, Groups C and D; Class II, Groups E, F and G.
Unit equipment.
Emergency fluorescent luminaires.
Class I, Division 2 only.
Unit equipment, Emergency exit equipment/AC fixture chloride.
Class I, Groups A, B, C and D, Division 2 only; Class II, Groups F and G, Division 2 only.
AC Exit Signs, Emergency Exit Signs, Emergency Exit Luminaires.

HUBBELL LIGHTING INC, SUB OF HUBBELL INC**E83676****701 MILLENNIUM BLVD, GREENVILLE SC 29607**

Class I, Groups B, C and D, Division 2.
Class I, Groups C and D; Class II, Groups E, F and G.

INDUSTRIAL/RIG LIGHTS INC**E216249****1215 INDUSTRIAL BLVD, BRENNHAM TX 77833**

Class I, Groups C and D, Division 1; Class I, Division 2, Groups A, B, C and D.
Emergency fluorescent fixtures.

KENALL MFG CO INC**E186031****1020 LAKESIDE DR, GURNEE IL 60031**

Class I, Groups A, B, C and D, Division 2 only; Class II, Groups F and G, Division 2 only; Class III.
Recessed emergency lighting fixtures, threaded for rigid conduit connection.

KILLARK, DIV OF HUBBELL INC (DELAWARE)**E162407****3940 MARTIN LUTHER KING DR, ST LOUIS MO 63113**

Class I, Groups C and D, Class II, Groups E, F and G, Class III.
Emergency lighting units.
Class I, Division 2, Groups A, B, C and D; Class II, Groups E, F and G.
Emergency lighting units.
Class II, Groups E, F and G.
Emergency lighting units.
Class I, Division 2, Groups A, B, C and D, Class II, Division 2, Groups F and G, Class III.
Emergency lighting units.

LDPI INC**E246725****4404 ANDERSON DR, EAU CLAIRE WI 54703**

Class I, Groups C and D; Class II, Groups E, F, and G.
Class I, Groups A, B, C and D, Division 2; Class II, Groups F, and G, Division 2.
Emergency fluorescent luminaires.
Class I, Division 2, Groups A, B, C and D.
Emergency fluorescent fixtures.

PARAMOUNT INDUSTRIES INC**E180047****304 N HOWARD ST PO BOX 259, CROSWELL MI 48422**

Class I, Groups A, B, C and D, Division 2; Class II, Groups F and G, Division 2.
Emergency fluorescent fixtures

PHOENIX PRODUCTS CO INC**E300686****8711 W PORT AVE, MILWAUKEE WI 53224**

Class I, Groups A, B, C and D, Division 2 only.
Emergency fluorescent fixtures, Emergency lighting equipment. Class I, Groups C and D, Class II, Groups E, F and G, Class III, Unit equipment, Class I, Groups A, B, C and D, Division 2, Emergency lighting units; Class I, Groups A, B, C and D, Division 1, Emergency lighting units, Class I, Groups C and D, Emergency fluorescent luminaires.

Class I, Division 1, Groups C and D.
Emergency fluorescent fixtures.

RIG-A-LITE PARTNERSHIP LTD**E119451****8500 HANSEN RD, HOUSTON TX 77075**

Class I, Groups C and D, Class II, Groups E, F and G, Class III, Unit equipment, Emergency exit lights, Class I, Groups A, B, C and D, Division 2, Emergency lighting units; Class I, Groups A, B, C and D, Division 2, Class II, Groups E, F and G, Class III, Emergency lighting units, Class I, Groups A, B, C and D, Division 2 only; Class II, Groups F and G, Division 2 only, Unit equipment.

SNELSON OILFIELD LIGHTING CO INC**E251826****3619 ALICE ST, FORT WORTH TX 76110**

Class I, Groups A, B, C and D, Division 2.

Class I, Groups C and D.

Fluorescent tube type lighting fixtures.

THOMAS & BETTS CORP**E131539****8155 T & B BLVD, MEMPHIS TN 38125**

Class I, Division 2; Class II, Groups F and G.

Class I, Division 2, Groups A, B, C and D, Emergency lighting equipment.

Class I, Groups C and D.

Class II, Groups F and G.

Class I, Groups C and D, Division 1.

EMERGENCY LIGHTING EQUIPMENT FITTINGS FOR USE IN HAZARDOUS LOCATIONS (FTGT)

GENERAL

This category covers subassemblies of emergency lighting equipment fittings intended for final assembly into a unit in the field in accordance with the manufacturer's installation instructions.

Information restricting the use of these fittings is marked on the fitting or provided with the fitting.

The lighting circuit ratings do not exceed 250 V for tungsten lamps.

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic standard used to investigate products in this category is ANSI/UL 844, "Luminaires for Use in Hazardous (Classified) Locations," in addition to Articles 500 – 503 and 700 of ANSI/NFPA 70, "National Electrical Code."

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Emergency Lighting Equipment, Fittings, for Use in Hazardous Locations," or other appropriate product name as shown in the individual Listings.

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

APPLETON ELECTRIC L L C**E165014****9377 W HIGGINS RD, ROSEMONT IL 60018**

Class I, Groups C and D; Class I, Division 2, Groups A, B, C and D; Class II, Groups E, F and G; Class III.

THOMAS & BETTS CORP**E190232****8155 T & B BLVD, MEMPHIS TN 38125**

Class I, Division 2; Class II, Groups F and G.

ENCLOSURES FOR METERING EQUIPMENT FOR USE IN HAZARDOUS LOCATIONS (FTRQ)

GENERAL

This category covers enclosures intended to house low-temperature metering equipment with no normally arcing or sparking parts in the hazardous location classes and groups indicated on the product, and as defined in ANSI/NFPA 70, "National Electrical Code."

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic hazardous (classified) locations standards used to investigate products in this category are referenced in Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Enclosure for Metering Equipment for Use in Hazardous Locations."

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

ADALET/SCOTT FETZER CO**E58818****4801 W 150TH ST, CLEVELAND OH 44135**

Class I, Groups B, C and D; Class II, Groups E, F and G.

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AKRON ELECTRIC INC 1025 EAGON ST, BARBERTON OH 44203 Class I, Groups B, C and D; Class II, Groups E, F and G; Type 4X.	E146600
COOPER CROUSE-HINDS WOLF & 7TH NORTH ST PO BOX 4999, SYRACUSE NY 13221 Class I, Groups B, C and D; Class II, Groups E, F and G.	E96342
CURLEE, DIV OF APPLETON ELECTRIC L L C 13639 ALDINE WESTFIELD, HOUSTON TX 77039 Class I, Groups B, C and D; Class II, Groups E, F and G.	E103220
ERDCO ENGINEERING CORP 721 CUSTER AVE PO BOX 6318, EVANSTON IL 60202 Class I, Groups C and D; Class II, Groups E, F and G.	E145946

ENCLOSURES FOR USE IN HAZARDOUS LOCATIONS (FTRV)

GENERAL

This category covers enclosures intended for use in one or more of the following hazardous locations, as indicated on the individual product, in accordance with ANSI/NFPA 70, "National Electrical Code": Class I, Groups A, B, C and D; Class II, Groups E, F and G; and Class II, Groups F and G, Division 2 only.

This category covers only the enclosures. Electrical devices that may be mounted within these enclosures are not covered under this category. Limitations on the maximum interrupting rating of arcing contacts and temperatures are provided on a label secured to the inside of the enclosure.

Unless otherwise noted in the individual certifications, enclosures are investigated for enclosing electrical equipment intended for connection to circuits having a maximum available fault current of 10,000 rms symmetrical amperes.

RELATED PRODUCTS

Certain enclosures in this category have also been investigated for use aboard marine vessels in accordance with United States Coast Guard (USCG) Electrical Engineering Regulations 46CFR110, "General Provisions," 46CFR111, "Electrical Systems – General Requirements," 46CFR112, "Emergency Lighting and Power Systems," and 46CFR113, "Communication and Alarm Systems and Equipment." Such enclosures are identified by a Marine Certification Mark. Enclosures marked "For Use On Vessels Over 65 Feet" have not been subjected to shock and vibration tests. Enclosures that have been subjected to shock and vibration tests are not marked with a vessel length limitation and may be used on any size vessel.

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic standard used to investigate explosion-proof and dust-ignition-proof enclosures in this category is ANSI/UL 1203, "Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations."

The basic standard used to investigate dust-tight enclosures for Class II, Groups F and G, Division 2 in this category is UL 1604, "Electrical Equipment for Use in Class I and II, Division 2, and Class III Hazardous (Classified) Locations," or ANSI/ISA-12.12.01, "Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations."

UL Subject 2062, "Outline of Investigation for Enclosures for Use in Hazardous (Classified) Locations," is also used to investigate explosion-proof, dust-ignition-proof and dust-tight enclosures.

UL MARK

The Classification Mark of UL on the product is the only method provided by UL to identify products manufactured under its Classification and Follow-Up Service. The Classification Mark for these products includes the UL symbol, the word "CLASSIFIED" above the UL symbol (as illustrated in the Introduction of this Directory) and the following additional information:

ENCLOSURE FOR USE IN HAZARDOUS LOCATIONS AS TO EXPLOSION AND FIRE HAZARD ONLY

Control No.

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

ADALET/SCOTT FETZER CO 4801 W 150TH ST, CLEVELAND OH 44135 Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III. Class I, Groups B, C and D; Class II, Groups E, F and G; Class III. Class I, Groups C and D; Class II, Groups E, F and G; Class III. Class I, Group D; Class II, Groups E, F and G. Class I, Division 2, Groups A, B, C, and D; Class III.	E81696
ADT SECURITY SERVICES INC ENGINEERING SERVICES SUITE 800 930 N RIVERVIEW DR, TOTOWA NJ 07512 Class I, Groups B, C and D; Class II, Groups E, F and G.	E190901
AKRON ELECTRIC INC 1025 EAGON ST, BARBERTON OH 44203 Class I, Groups B, C and D; Class II, Groups E, F and G. Class I, Groups C and D; Class II, Groups E, F and G.	E139669
APPLETON ELECTRIC L L C 9377 W HIGGINS RD, ROSEMONT IL 60018 Class I, Groups B, C and D; Class II, Groups B, C and D, Division 2; Class II, Groups E, F and G; Class III.	E77137
BELIMO AIRCONTROLS (USA) INC PO BOX 2928, DANBURY CT 06813	E171991



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ENCLOSURES FOR USE IN HAZARDOUS LOCATIONS (FTRV)

Class I, Groups B, C and D; Class II, Groups E, F and G.

CCI THERMAL TECHNOLOGIES INC

5918 ROPER RD, EDMONTON, AB T6B 3E1 CANADA

Class I, Groups C and D; Class II, Groups E, F and G; Class III.

E342156

COOPER CROUSE-HINDS S A DE C V

AV JAVIER ROJO, GOMEZ 1170 COL 09300, GUADALUPE DEL

MORAL, DF MEXICO

Class I, Groups C and D; Class II, Groups E, F and G.

E162378

COOPER CROUSE-HINDS

WOLF & 7TH NORTH ST PO BOX 4999, SYRACUSE NY 13221

Class I, Groups B, C and D; Class I, Groups B, C and D, Division 2; Class II, Groups E, F and G; Class III.

E71278

CURLEE, DIV OF APPLETON ELECTRIC L L C

13639 ALDINE WESTFIELD, HOUSTON TX 77039

Class I, Groups B, C and D; Class II, Groups E, F and G; Class III.

E84577

DRAEGER SAFETY AG & CO KGAA

REVALSTRASSE 1 23560, LUEBECK GERMANY

Class I, Groups A, B, C and D.

E183435

EDWARDS, A DIV OF UTC FIRE & SECURITY AMERICAS CORPORATION, INC.

8985 TOWN CENTER PKY, BRADENTON FL 34202

Class I, Groups B, C and D; Class II, Groups E, F and G.

E88735

FEAM SRL

VIA MARIO PAGANO 3 20090, TREZZANO S/NAVIGLIO,

MI ITALY

Class I, Groups B, C, and D; Class II, Groups E, F, and G; Class III.

E302348

GAUGING SYSTEMS INC

SUITE A 910 INDUSTRIAL BLVD, SUGAR LAND TX 77478

Class I, Groups C and D; Class II, Groups E, F and G.

E183952

GENERAL MONITORS

26776 SIMPATICA CIR, LAKE FOREST CA 92630

Class I, Groups A, B, C and D; Class II, Groups E, F and G.

E349954

HYDRIL CO

PO BOX 60458, HOUSTON TX 77205

Class I, Groups C and D.

E131789

INTERNATIONAL SENSOR TECHNOLOGY

3 WHATNEY, IRVINE CA 92618

Class I, Groups B, C and D.

E153533

KILLARK, DIV OF HUBBELL INC (DELAWARE)

3940 MARTIN LUTHER KING DR, ST LOUIS MO 63113

(Mailing address: P. O. Box 5325, St. Louis, MO 63115)

Class I, Groups B, C and D; Class II, Groups E, F and G; Class III.

E83969

MINE SAFETY APPLIANCES CO

1000 CRANBERRY WOODS DR, CRANBERRY TOWNSHIP PA

16066

Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III.

Class I, Groups A, B, C and D.

E83882

NUOVA ASP SRL

VIA DE GASPERI 26 20090, PANTIGLIATE, MI ITALY

Class I, Groups B, C and D; Class II, Groups E, F and G; Class III.

Class I, Groups C and D; Class II, Groups E, F and G; Class III.

E344596

OMRON SCIENTIFIC TECHNOLOGIES INC

6550 DUMBARTON CIR, FREMONT CA 94555

Class I, Groups B, C and D; Class II, Groups E, F and G.

Class I, Groups C and D; Class II, Groups E, F and G.

E165851

PELCO INC

3500 PELCO WAY, CLOVIS CA 93612

Class I, Groups C and D; Class II, Groups E, F and G.

E126441

PENTAIR TECHNICAL PRODUCTS

2100 HOFFMAN WAY, ANOKA MN 55303

E167450



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ENCLOSURES FOR USE IN HAZARDOUS LOCATIONS (FTRV)

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Class II, Groups E, F and G.

PULSAFEEDER INC 2883 BRIGHTON HENRIETTA TOWN LINE RD, ROCHESTER NY 14623 Class I, Groups C and D.	E71534
QUALITROL CORP 1385 FAIRPORT RD, FAIRPORT NY 14450 Class I, Group D.	E79195
R STAHL SCHALTGERAETE GMBH AM BAHNHOF 30 74638, WALDENBURG GERMANY Class I, Division 1, Groups A, B, C and D; Class II, Division 1, Groups E, F and G; Class III. Class I, Division 1, Groups B, C and D; Class II, Division 1, Groups E, F and G; Class III.	E307783
RKI INSTRUMENTS INC 33248 CENTRAL AVE, UNION CITY CA 94587-2010 Class I, Groups B, C and D.	E180083
SAFETY SYSTEMS TECHNOLOGY INC SUITE 215 23282 MILL CREEK DR, LAGUNA HILLS CA 92653- 1678 Class I, Groups B, C and D; Class II, Groups E, F and G.	E162517
SENSIDYNE L P 16333 BAY VISTA, CLEARWATER FL 33760 Class I, Groups B, C and D.	E130950
SPECTREX INC 218 LITTLE FALLS RD, CEDAR GROVE NJ 07009 Class I, Groups C and D.	E209870
SPERIAN PROTECTION INSTRUMENTATION L L C 651 S MAIN ST, MIDDLETOWN CT 06457 Class I, Groups A, B, C and D; Class II, Groups E, F and G.	E184588
STEVE YANG INDUSTRIAL CO LTD KUANYIN INDUSTRIAL ESTATE 29 CHINGCHIEN 3 RD KUANYIN, TAOYUAN 328 TAIWAN Class I, Group D.	E217689
SUMMIT USA L L C 512 FORD ST, LAKE CHARLES LA 70601 Class I, Groups A, B, C and D.	E234045
TECNA S A CARR 32 NO 22B-60/66 APARTADO AEREO 240670, BOGOTA, DE COLOMBIA Class I, Groups C and D; Class II, Groups E, F and G.	E161224
THERMO ENVIRONMENTAL INSTRUMENTS INC 27 FORGE PKY, FRANKLIN MA 02038 Class I, Groups A, B, C and D; Class I, Groups B, C and D.	E140751
THOMAS & BETTS CORP 8155 T & B BLVD, MEMPHIS TN 38125 Class I, Groups B, C and D; Class II, Groups E, F and G.	E197231
VICON INDUSTRIES INC 89 ARKAY DR, HAUPPAUGE NY 11788 Class I, Groups C and D; Class II, Groups E, F and G.	E116694
WESTLOCK CONTROLS CORP 280 N MIDLAND AVE, SADDLE BROOK NJ 07663 Class I, Groups B, C and D; Class II, Groups E, F and G.	E124476

ENCLOSURE ACCESSORIES FOR USE IN HAZARDOUS LOCATIONS (FTRX)

GENERAL

This category covers enclosure bodies, flat, domed or window covers, window assemblies, threaded extensions, actuation mechanisms and similar subassemblies of enclosures. They are intended to be assembled at the factory or in the field to form a complete explosion proof or dust-ignition-proof enclosure. Restrictions on the use and assembly of these devices are marked on each part.

RELATED PRODUCTS

For additional information, see Enclosures for Use in Hazardous Locations (FTRV).

ADDITIONAL INFORMATION

For additional information, see Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic standard used to investigate products in this category is ANSI/UL 1203, "Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations."

UL MARK

The Classification Mark of UL on the product is the only method provided by UL to identify products manufactured under its Classification and Follow-Up Service. The Classification Mark for these products includes the UL symbol, the word "CLASSIFIED" above the UL symbol (as illustrated in the Introduction of this Directory), and the following additional information:

**ENCLOSURE ACCESSORY FOR USE IN HAZARDOUS LOCATIONS
AS TO EXPLOSION AND FIRE HAZARD ONLY**

Control No.

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

ADALET/SCOTT FETZER CO**E168766**

4801 W 150TH ST, CLEVELAND OH 44135

Class I, Groups B, C and D; Class II, Groups E, F and G.

Class II, Division 2, Groups F and G.

AKRON ELECTRIC INC**E181300**

1025 EAGON ST, BARBERTON OH 44203

Class I, Groups B, C and D; Class II Groups E, F and G; Class III.

APPLETON ELECTRIC L L C**E201136**

9377 W HIGGINS RD, ROSEMONT IL 60018

Class I, Groups B, C and D; Class II, Groups E, F and G.

COOPER CROUSE-HINDS**E174243**

WOLF & 7TH NORTH ST PO BOX 4999, SYRACUSE NY 13221

Class I, Groups C and D; Class II, Groups E, F and G.

KILLARK, DIV OF HUBBELL INC (DELAWARE)**E150827**

3940 MARTIN LUTHER KING DR, ST LOUIS MO 63113

Class I, Groups B, C and D; Class II, Groups E, F and G.

ENGINE CONTROL EQUIPMENT AND ENGINE GENERATORS FOR USE IN HAZARDOUS LOCATIONS (FTVV)

This category covers engine control equipment, which is electrical equipment for use in the control and operation of stationary internal combustion engines and gas turbines in Class I, Division 2 hazardous locations.

This equipment is intended to be installed in accordance with ANSI/NFPA 37, "Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines."

This category also covers engine generators, which are electrical generating equipment driven by gasoline, LP-gas, natural gas or diesel-fueled internal combustion engines or gas turbines for use in Class I, Division 2 hazardous locations.

Listed stationary engine generator assemblies are rated 600 V or less and are intended for installation and use in accordance with ANSI/NFPA 70, "National Electrical Code," and ANSI/NFPA 37. The protection method employed for installations in hazardous locations is Purging and Pressurization in accordance with ANSI/NFPA 496, "Standard for Purged and Pressurized Enclosures for Electrical Equipment."

UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

ENGINE CONTROLS FOR USE IN HAZARDOUS LOCATIONS (FTWD)

USE AND INSTALLATION

This category covers engine controls intended for use with engine-powered electrical generators for use in hazardous (classified) locations. These devices are intended to monitor and control engine functions.

UNEVALUATED FACTORS

This equipment has not been investigated for use with engines or turbines that provide critical functions, such as emergency power or fire protection.

RELATED EQUIPMENT

See Ignition Controls for Use in Hazardous Locations (FTWL).

ADDITIONAL INFORMATION

For additional information, see Engine Control Equipment and Engine Generators for Use in Hazardous Locations (FTVV) and Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

REQUIREMENTS

The basic unclassified locations standard used to investigate products in this category is ANSI/UL 508, "Industrial Control Equipment."

The basic hazardous (classified) locations standards used to investigate products in this category are referenced in Equipment for Use in and Relating to Class I, II and III, Division 1 and 2 Hazardous Locations (AAIZ).

UL MARK

The Listing Mark of UL on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Engine Control for Use in Hazardous Locations."