

FIRE PROTECTION EQUIPMENT DIRECTORY 2012

This Directory contains all Listings and Classifications in effect as of January 3, 2012 for product categories covered.

UL Online Certifications Directory Listings and Classifications are updated daily. To confirm the current status of any UL record, consult UL's Online Certifications Directory at www.ul.com/database.

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FIRE PROTECTION EQUIPMENT DIRECTORY

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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 January 3, 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.

Fire Protection Equipment (AAFP)

GENERAL

Fire protection equipment includes fire suppression equipment and systems, fire alarm equipment and fire fighting equipment, such as fire hoses, fire and emergency services protective clothing, and automotive fire apparatus. Also included are furnishings in buildings investigated for combustibility, such as upholstered furniture, mattresses, and warehouse pallets.

This equipment is intended for use only as described in the general Guide Information for each product category and individual Listings. This equipment has been investigated for use as described in the instructions and markings provided with the equipment. The use of the equipment in conditions other than described in the instructions, markings and the general Guide Information for the applicable product category has not been investigated by UL.

CERTIFICATE SERVICE

Fire alarm systems require extensive installation work and maintenance by the Listed installing company. UL's Standards for these systems cover installation methods, extent of protection, and maintenance service, which are supervised under UL's Certificate Service.

Under Certificate Service, UL authorizes the issuance of UL's certificates to installations which the Listed installing company represents to be in compliance with requirements established for the product category. The certificate indicates the classification, extent, location of equipment, period covered by the certificate, and name of the installing company.

UL conducts countercheck field examinations of representative installations of the Listed installing company. UL assumes no liability for any loss that may result from failure of the equipment, incorrect certification or nonconformity with requirements. If installations not in compliance with UL's requirements are found as a result of field examinations, they are subject to correction by the Listed installing company or cancellation of the certificate.

All of a company's alarm system installations may not be covered under UL's Certificate Service. Only those installations for which a certificate has been properly issued are covered under UL's Certificate Service.

UL maintains a Certificate Verification Service (ULCVS) that allows Authorities Having Jurisdiction (AHJs) to verify up-to-date Certificate information and identify companies eligible to issue Certificates as of the date of the inquiry. Only those alarm or signal system installations for which a Certificate has been issued are covered under UL's Certificate Service. The verification of a Certificate on ULCVS is the only method UL provides to identify the Certificated alarm systems actively covered under its Listing and Follow-Up Service.

INVESTIGATION REQUIREMENTS AND STANDARDS

The scope of product sizes and ratings appearing in the general Guide Information for some product categories is intended to indicate the current range of Listed products, however, it is not necessarily indicative of limitations for those Listed products.

The standards used to investigate products are identified in the general Guide Information for each product category. There may not always be a published standard for investigating a product to determine its acceptability for Listing or Classification. If no applicable standard is available, UL will exercise its judgment in the selection of applicable requirements from related standards and other sources to develop the requirements to cover uses and conditions for which specific requirements did not previously exist.

Products, equipment and construction materials certified by UL in accordance with international or regional standards only (e.g., products Classified to an IEC or ISO Standard) are intended for distribution, installation and use in areas of the world where the specified standards have been adopted and are in effect as national or regional standards.

INSTALLATION REQUIREMENTS

The limitations for the equipment as specified in the general Guide Information for each product category such as voltage and temperature limits, markings, special descriptions and installation provisions need to be noted prior to installation and use.

Equipment has been investigated with reference to risks to life and property and for potential conformity to the installation and use provisions of the applicable installation codes and standards of the National Fire Protection Association, and applicable model codes identified in the general Guide Information for each product category.

Some products are certified for uses not within the scope of nationally recognized installation codes and standards. Such products are investigated for the specifications or use conditions indicated in the general Guide Information for each product category.

These products are intended for installation subject to approval by the Authority Having Jurisdiction. Authorities Having Jurisdiction should be consulted before installation.

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.

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.

INDOOR AND OUTDOOR USE

Unless outdoor use is specifically indicated in the general Guide Information for the product category or included in the individual Listings of the product, individual appliances have been investigated only for use indoors, unless the product, by its inherent nature, is obviously intended for use outdoors.

ELECTRICAL INSTALLATIONS

General The ampere or wattage marking on electrical power-consuming equipment is valid only when the equipment is supplied at its marked rated voltage. In general, the current input to electric heating appliances or resistance heating equipment will increase in direct proportion to an increase in the supply voltage, while the current input to an induction motor supplying a constant load will increase approximately in direct proportion to a decrease in the supply voltage. These increases in current can cause overcurrent protection devices to open even when these devices are properly selected on the basis of nameplate ratings.

Supply Conductors Except as noted in the general Guide Information for some product categories, most terminals are for use only with copper wire unless marked otherwise. If aluminum or copper-clad aluminum wire can be used, marking to indicate this fact is provided. Such marking is required to be independent of any marking on terminal connectors, such as on a wiring diagram or other visible location. The marking may be in an abbreviated form, such as "AL-CU."

Except as noted below or in the general Guide Information for certain product categories, the electrical termination provisions on equipment are based on the use of 60°C insulated conductors in circuits rated 100 A or less and the use of 75°C insulated conductors in higher rated circuits.

If the electrical termination provisions on equipment are based on the use of other conductors, the equipment is either marked with both the size and temperature rating of the conductors to be used or with only the temperature rating of the conductors to be used. If the equipment is only marked for use with conductors having a higher (75 or 90°C) temperature rating (wire size not specified), the 60°C ampacities (for circuits rated 100 A or less) and 75°C ampacities (for circuits rated over 100 A) specified in Table 310.16 of ANSI/NFPA 70, "National Electrical Code" (NEC), should be used to determine wire size. Conductors

having a temperature rating higher than specified may be used, though not required, if the size of the conductors is determined on the basis of the 60°C ampacity (circuits rated 100 A or less) or 75°C ampacity (circuits rated over 100 A).

Copper-clad aluminum conductors are subject to the ampacity requirements applicable to aluminum conductors.

Terminations Copper pigtail leads may be used with aluminum or copper-clad aluminum supply wires in dry locations if 1) the splicing devices are Listed for use in joining copper to aluminum, 2) there is sufficient wiring space, and 3) the means provided for connecting the wiring system are acceptable for the wire size used.

Supply terminals of 15 A and 20 A switches and receptacles not marked "CO/ALR" are for use with copper and copper-clad aluminum conductors only. Terminals marked "CO/ALR" are for use with aluminum, copper and copper-clad aluminum conductors.

Screwless pressure terminal connectors of the conductor push-in type are for use only with copper and copper-clad aluminum conductors, both solid and stranded unless otherwise limited by marking.

Terminals of switches and receptacles rated 30 A and above not marked "AL/CU" are for use with copper conductors only. Terminals of switches rated 30 A and above marked "AL/CU" are for use with aluminum, copper and copper-clad aluminum conductors.

Combination of dissimilar conductors in terminal or splicing connectors is acceptable only in dry locations and when the connectors are identified as suitable for such intermixing.

Hazardous Locations Electrical equipment and appliances are not intended for use in hazardous (classified) locations, as defined in the NEC, unless specifically identified as suitable 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.

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2012 FIRE PROTECTION EQUIPMENT DIRECTORY

FIRE AND EMERGENCY SERVICES AUTOMOTIVE APPARATUS AND EQUIPMENT (AZYE)

FIRE AND EMERGENCY SERVICES AUTOMOTIVE APPARATUS AND EQUIPMENT (AZYE)

AUTOMOTIVE FIRE APPARATUS EQUIPMENT (AZZY)

USE

This category covers the following equipment intended for use with automotive fire apparatus:

- Air hose reels
- Power-operated light masts
- Pumps
- Reflective stripes
- SCBA or SCUBA air cylinder fill stations
- Water tank capacity

ADDITIONAL INFORMATION

For additional information, see Fire Protection Equipment (AAFP).

REQUIREMENTS

The basic standard used to investigate products in this category is ANSI/NFPA 1901, "Automotive Fire Apparatus," with specific sections as follows:

- Air hose reels in accordance with Section 24.10
- Power-operated light masts in accordance with Section 22.14
- Pumps in accordance with Section 16.13
- Reflective stripes in accordance with Section 15.9.3
- SCBA or SCUBA air cylinder fill stations in accordance with Section 24.9.7
- Water tank capacity in accordance with Section 18.6

UL MARK

The Classification Mark of UL on the product, or an abbreviated form of the Classification Mark on the product and the complete Classification 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 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:

For air hose reels:

AIR HOSE REEL

IN ACCORDANCE WITH SECTION 24.10 OF THE NATIONAL FIRE PROTECTION ASSOCIATION STANDARD FOR AUTOMOTIVE FIRE APPARATUS

NFPA 1901-2009

Control No.

The Classification Mark may be abbreviated as follows:

AIR HOSE REEL

IN ACCORDANCE WITH SECTION 24.10 OF NFPA 1901-2009

Control No.

For power-operated light masts:

POWER-OPERATED LIGHT MAST

IN ACCORDANCE WITH SECTION 22.14 OF THE NATIONAL FIRE PROTECTION ASSOCIATION STANDARD FOR AUTOMOTIVE FIRE APPARATUS

NFPA 1901-2009

Control No.

The Classification Mark may be abbreviated as follows:

POWER-OPERATED LIGHT MAST

IN ACCORDANCE WITH SECTION 22.14 OF NFPA 1901-2009

Control No.

For pumps:

PUMP

IN ACCORDANCE WITH SECTION 16.13 OF THE NATIONAL FIRE PROTECTION ASSOCIATION STANDARD FOR AUTOMOTIVE FIRE APPARATUS

NFPA 1901-2009

Control No.

The Classification Mark may be abbreviated as follows:

PUMP

IN ACCORDANCE WITH SECTION 16.13 OF NFPA 1901-2009

Control No.

For reflective stripes:

FIRE AND EMERGENCY SERVICES AUTOMOTIVE APPARATUS AND EQUIPMENT (AZYE)

Automotive Fire Apparatus Equipment (AZZY)-Continued

REFLECTIVE STRIPE

IN ACCORDANCE WITH SECTION 15.9.3 OF THE NATIONAL FIRE PROTECTION ASSOCIATION STANDARD FOR AUTOMOTIVE FIRE APPARATUS

NFPA 1901-2009

Control No.

The Classification Mark may be abbreviated as follows:

REFLECTIVE STRIPE

IN ACCORDANCE WITH SECTION 15.9.3 OF NFPA 1901-2009

Control No.

For SCBA fill stations:

* AIR CYLINDER FILL STATION

IN ACCORDANCE WITH SECTION 24.9.7 OF THE NATIONAL FIRE PROTECTION ASSOCIATION STANDARD FOR AUTOMOTIVE FIRE APPARATUS

NFPA 1901-2009

Control No.

The Classification Mark may be abbreviated as follows:

* AIR CYLINDER FILL STATION

IN ACCORDANCE WITH SECTION 24.9.7 OF NFPA 1901-2009

Control No.

* SCBA and/or SCUBA

For water tank capacity:

WATER TANK CAPACITY * GALLONS

IN ACCORDANCE WITH SECTION 18.6 OF THE NATIONAL FIRE PROTECTION ASSOCIATION STANDARD FOR AUTOMOTIVE FIRE APPARATUS

NFPA 1901-2009

Control No.

The Classification Mark may be abbreviated as follows:

WATER TANK CAPACITY * GAL

IN ACCORDANCE WITH SECTION 18.6 OF NFPA 1901-2009

Control No.

* number of gallons

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.

EAGLE COMPRESSORS INC

AU5138

3003 THURSTON AVE, GREENSBORO NC 27406-4516

Automotive fire apparatus equipment in accordance with NFPA 1901-2009. SCBA air cylinder fill station in accordance with Section 24.9.7. Model: SideWinder, Part No. SWX2@@@; SafeStation - Two Position, Part No. SSX2@@@, MSSX2@@@, or RS@@@; SafeStation - Three Position, Part No. SSX3@@@, MSSX3@@@, or B3@@@; Centurion SafeStation, Part No. CSSX2@@@, SSX2C@@@, SSX4C@@@, BH@@@@@, or RV@@@@@.

SCUBA air cylinder fill station in accordance with Section 24.9.7. Model: SafeStation - Two Position, Part No. SSX2@@@, MSSX2@@@, or RS@@@; SafeStation - Three Position, Part No. SSX3@@@, MSSX3@@@, or B3@@@; Centurion SafeStation, Part No. CSSX2@@@, SSX2C@@@, SSX4C@@@, BH@@@@@, or RV@@@@@.

Note: @ - May be replaced with any alphanumeric combination per the manufacturer to specify particular accessories. Total number of characters for part number may vary.

FIREFLY FIRE PUMPS PVT LTD

AU5179

C-7 MIDC GOKUL SHIRGAON, KOLHAPUR, MH 416234 INDIA

Automotive fire apparatus equipment in accordance with NFPA 1901-2009. Pumps in accordance with Section 16.13, Models MFV-LP-1020, MFV-LP-1030, MFV-LP-1040, MFV-MP-1020, MFV-MP-1030, MFV-MP-1040.

J P SAUER & SOHN MASCHINENBAU GMBH

EX15752

BRAUNER BERG 15 24159, KIEL, SCHLESWIG-HOLSTEIN GERMANY

Automotive fire apparatus equipment in accordance with NFPA 1901-2009. SCBA air cylinder fill station in accordance with Section 24.9.7, Breathing Air Filling Station - Two Outlets, Breathing Air Filling Station - Three Outlets. SCUBA air cylinder fill station in accordance with Section 24.9.7, Breathing Air Filling Station - Two Outlets, Breathing Air Filling Station - Three Outlets. Note: The "-" is optional.



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**FIRE AND EMERGENCY SERVICES AUTOMOTIVE
APPARATUS AND EQUIPMENT (AZYE)**
Automotive Fire Apparatus Equipment (AZZY)–Continued

ROSENBAUER INTERNATIONAL AG **EX4835**
PASCHINGERSTR 90 4060, LEONDING AUSTRIA
Fire pumps, Models N25, N30, N35, N40, N55, NH25, NH30, NH35, NH40, NH55, R600.

BACKFLOW SPECIAL CHECK VALVE DEVICES (BAEU)

GENERAL

This category covers backflow special check valves consisting of the following types:

- Double check (DC)
- Double-check detector type (DCD)
- Reduced pressure (RP)
- Reduced-pressure detector type (RPD)

These devices consist of the reduced-pressure-principle type and the double-check-valve type. Both types of valves may include a bypass meter assembly and are designated as detector type. They have been Classified as to friction loss and strength of body only.

These devices are intended for use in fire-service systems for rated pressures not exceeding 175 psig for sizes 3/4 through 10 in.

These devices have not been investigated for use in potable water systems.

Each valve is provided with the manufacturer's installation instructions, which include flow performance information from zero flow to flowing velocities in excess of 15 ft/s.

Valves are intended for horizontal (H) installation only unless specifically indicated for horizontal installation and vertical (V) upward flow installation as described in the individual Classifications.

Requirements for the installation and use of these valves are included in National Fire Protection Association standards for the installation of fire-protection systems employing water, such as:

- ANSI/NFPA 13, "Installation of Sprinkler Systems"
- ANSI/NFPA 14, "Installation of Standpipe and Hose Systems"
- ANSI/NFPA 15, "Water Spray Fixed Systems for Fire Protection"
- ANSI/NFPA 20, "Installation of Stationary Pumps for Fire Protection"
- ANSI/NFPA 22, "Water Tanks for Private Fire Protection"
- ANSI/NFPA 24, "Installation of Private Fire Service Mains and Their Appurtenances"

Authorities Having Jurisdiction should be consulted before installation.

ADDITIONAL INFORMATION

For additional information, see Fire Protection Equipment (AAFP) and Plumbing and Associated Products (AAPP).

REQUIREMENTS

The basic standard used to investigate products in this category is UL 1469, "Strength of Body and Hydraulic Pressure Loss Testing of Backflow Special Check Valves."

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:

BACKFLOW SPECIAL CHECK VALVE DEVICE AS TO FRICTION LOSS AND BODY STRENGTH 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.

AMES CO INC **EX3872**
1485 TANFORAN AVE, WOODLAND CA 95776

Backflow special check valves for a max. working pressure of 175 psi in the following models, types and sizes:

Model	Type	Size In.	Installation Orientation
200B	DC	3/4, 1, 1-1/4, 1-1/2, 2	H, V
2000B	DC	3/4, 1-1/4, 1-1/2	H, V
2000B	DC	1, 2	H, V
2000CIV	DC	4, 6, 8, 10	H
2000DC	DC	10	H
2000DCA	DC	8	H

BACKFLOW SPECIAL CHECK VALVE DEVICES (BAEU)

Model	Type	Size In.	Installation Orientation
2000SE	DC	2-1/2, 6, 8	H, V
2000SS	DC	2-1/2	H, V
2000SSF	DC	2, 3, 4, 6, 8, 10, 12	H, V
2000B-FP	DC	3/4, 1, 1-1/4, 1-1/2, 2	H, V
2001SS	DC	3, 4, 6, 8	H, V
2001SSN	DC	3, 4, 6, 8	H
2001SSZ	DC	3, 4, 6, 8	H
3001SS	DCD	3, 4, 6, 8	H, V
3001SSN	DCD	3, 4, 6, 8	H
3001SSZ	DCD	3, 4, 6, 8	H
3000B	DCD	2, 2-1/2	H, V
3000CIV	DCD	4, 6, 8, 10	H
3000DCDC	DCD	10	H
3000SE	DCD	2-1/2, 6, 8	H, V
3000SS	DCD	2-1/2	H, V
3000SSF	DCD	2, 3, 4, 6, 8, 10, 12	H, V
3000B-FP	DCD	2	H
4000B	RP	3/4, 1-1/4, 1-1/2, 2	H, V
4000B	RP	1	H, V
400B	RP	3/4, 1, 1-1/4, 1-1/2, 2	H
4000CIV	RP	2-1/2, 3, 4, 6, 8, 10	H
4000RP	RP	6, 8, 10	H
4000SS	RP	2-1/2, 3, 4, 6, 8, 10	HV
4000B-FP	RP	3/4, 1, 1-1/4, 1-1/2, 2	H, V
4001SS	RP	3, 4, 6	H
4001SSN	RP	3, 4, 6	H
4001SSZ	RP	3, 4, 6	H
5000	RPD	4, 6, 8, 10	H
5000CIV	RPD	2-1/2, 3, 4, 6, 8, 10	H
5000SS	RPD	2-1/2, 3, 4, 6, 8, 10	HV
5001SS	RPD	3, 4, 6	H
5001SSN	RPD	3, 4, 6	H
5001SSZ	RPD	3, 4, 6	H
Colt 200	DC	2-1/2	H, V
		3	H, V
		4	H, V
		6	H, V
		8	H, V
		10	H, V
Colt 200N	DC	2-1/2	H
		3	H
		4	H
		6	H
		8	H
		10	H
Maxim 200	DC	2-1/2	H, V
		3	H, V
		4	H, V
		6	H, V
		8	H, V
		10	H, V
Maxim 200N	DC	2-1/2	H
		3	H
		4	H
		6	H
		8	H
		10	H
Colt 200A	DC	2-1/2	H, V
		3	H, V
		4	H, V
		6	H, V
Colt 200NA	DC	2-1/2	H
		3	H
		4	H
		6	H
Maxim 200A	DC	2-1/2	H, V
		3	H, V
		4	H, V
Maxim 200NA	DC	2-1/2	H
		3	H
		4	H
Colt 300	DCDA	2-1/2	H, V
		3	H, V
		4	H



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2012 FIRE PROTECTION EQUIPMENT DIRECTORY

BACKFLOW SPECIAL CHECK VALVE DEVICES (BAEU)

Model	Type	Size In.	Installation Orientation
Colt 300N	DCDA	6	H,V
		8	H,V
		10	H,V
		2-1/2	H
		3	H
Maxim 300	DCDA	4	H
		6	H
		8	H
		10	H
		2-1/2	H,V
Maxim 300N	DCDA	3	H,V
		4	H,V
		6	H,V
		8	H,V
		10	H,V
Colt 300A	DCDA	2-1/2	H
		3	H
		4	H
		6	H
		8	H
Colt 300NA	DCDA	10	H
		2-1/2	H,V
		3	H,V
		4	H,V
		6	H,V
Maxim 300A	DCDA	2-1/2	H
		3	H
		4	H
		6	H
		8	H
Maxim 300NA	DCDA	2-1/2	H,V
		3	H,V
		4	H,V
		6	H
		8	H
Colt 400	RP	2-1/2	H
		3	H
		4	H
		6	H
		8	H
Colt 400N	RP	10	H
		2-1/2	H
		3	H
		4	H
		6	H
Colt 400Z	RP	8	H
		10	H
		2-1/2	H
		3	H
		4	H
Maxim 400	RP	6	H
		8	H
		10	H
		2-1/2	H
		3	H
Maxim 400N	RP	4	H
		6	H
		8	H
		10	H
		2-1/2	H
Maxim 400Z	RP	3	H
		4	H
		6	H
		8	H
		10	H
Colt 500	RPDA	2-1/2	H
		3	H
		4	H
		6	H
		8	H
Colt 500N	RPDA	10	H
		2-1/2	H
		3	H
		4	H
		6	H

BACKFLOW SPECIAL CHECK VALVE DEVICES (BAEU)

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Model	Type	Size In.	Installation Orientation
Colt 500Z	RPDA	10	H
		2-1/2	H
		3	H
		4	H
		6	H
Maxim 500	RPDA	8	H
		10	H
		2-1/2	H
		3	H
		4	H
Maxim 500N	RPDA	6	H
		8	H
		10	H
		2-1/2	H
		3	H
Maxim 500Z	RPDA	4	H
		6	H
		8	H
		10	H
		2-1/2	H

CONBRACO INDUSTRIES INC

EX4181

1418 S PEARL ST PO BOX 125, PAGELAND SC 29728

Backflow special check valves for a maximum working pressure of 175 psi in the following models, types and sizes:

Model	Type	Size In.	Installation Orientation
2-1/2DC	DC	2-1/2	H,V
2-1/2DCDA	DCD	2-1/2	H,V
3DC	DC	3	H,V
3DCDA	DCD	3	H,V
4DC	DC	4	H,V
4DCDA	DCD	4	H,V
6DC	DC	6	H,V
6DCDA	DCD	6	H,V
8DC	DC	8	H,V
8DCDA	DCD	8	H,V
8DCDAU	DCD	8	H
8RP	RP	8	H
8RPU	RP	8	H
8RPZ	RP	8	H
10DC	DC	10	H,V
10DCDA	DCD	10	H,V
10DCU	DC	10	H
10RP	RP	10	H
10RPU	RP	10	H
10RPZ	RP	10	H
40-204-FP1	RP	3/4	H
40-204-FP1S	RP	3/4	H
40-205-FP1	RP	1	H
40-205-FP1S	RP	1	H
40-206-FP1	RP	1-1/4	H
40-207-FP1	RP	1-1/2	H
40-208-FP1	RP	2	H
40-200	RP	3	H
40-20A	RP	4	H
40-20C	RP	6	H
40-20E	RP	8	H
40-20G	RP	10	H
40-700	RPD	3	H
40-70A	RPD	4	H
40-70C	RPD	6	H
40-70E	RPD	8	H
40-70G	RPD	10	H
40-104-FP1	DC	3/4	H,V
40-105-FP1	DC	1	H,V
40-106-FP1	DC	1-1/4	H,V
40-107-FP1	DC	1-1/2	H,V
40-108-FP1	DC	2	H,V
40-109	DC	2-1/2	H,V
40-100	DC	3	H,V
40-600	DCD	3	H,V
40-10A	DC	4	H,V
40-60A	DCD	4	H,V
40-60C	DCD	6	H,V



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4 BACKFLOW SPECIAL CHECK VALVE DEVICES (BAEU)

Model	Type	Size In.	Installation Orientation
40-10C	DC	6	H, V
40-10E	DC	8	H, V
40-60E	DCD	8	H, V
40-10G	DC	10	H, V
40-60G	DCD	10	H, V
2-1/2 RP	RP	2-1/2	H
2-1/2 RP-U	RP	2-1/2	H
2-1/2 RP-Z	RP	2-1/2	H
3 RP	RP	3	H
3 RP-U	RP	3	H
3 RP-Z	RP	3	H
4 RP	RP	4	H
4 RP-U	RP	4	H
4 RP-Z	RP	4	H
6 RP	RP	6	H
6 RP-U	RP	6	H
6 RP-Z	RP	6	H
4D-109	DC	2-1/2	H, V
4D-609	DCD	2-1/2	H, V
4D-209	RP	2-1/2	H
4D-709	RPD	2-1/2	H
4D-100	DC	3	H, V
4D-600	DCD	3	H, V
4D-200	RP	3	H
4D-700	RPD	3	H
4D-10A	DC	4	H, V
4D-60A	DCD	4	H, V
4D-20A	RP	4	H
4D-70A	RPD	4	H
4D-10C	DC	6	H, V
4D-60C	DCD	6	H, V
4D-20C	RP	6	H
4D-70C	RPD	6	H
4D-10E	DC	8	H, V
4D-60E	DCD	8	H, V
4D-20E	RP	8	H
4D-70E	RPD	8	H
4D-10G	DC	10	H, V
4D-60G	DCD	10	H, V
4D-20G	RP	10	H
4D-70G	RPD	10	H
4SG-100	DC	2-1/2, 3, 4, 6, 8	H, V, U-Flow
4SG-600	DCD	2-1/2, 3, 4, 6, 8	H, V, U-Flow
DUC4FP	DC	1, 1-1/4	H, V
DC 4A	DC	3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 6, 8	H, V
DCDA 4A	DCD	2-1/2, 3, 4, 6, 8	H, V
DCDA2 4A	DCD	2-1/2, 3, 4, 6, 8	H, V
DC 4AN	DC	2-1/2, 3, 4, 6, 8	n-Flow
DCDA 4AN	DCD	2-1/2, 3, 4, 6, 8	n-Flow
DCDA2 4AN	DCD	2-1/2, 3, 4, 6, 8	n-Flow
RP 4A	RP	3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 6, 8	H
RPDA 4A	RP	2-1/2, 3, 4, 6, 8	H
RPDA2 4A	RP	2-1/2, 3, 4, 6, 8	H
RP 4AN	RP	2-1/2, 3, 4, 6, 8	n-Flow, Z-Flow
RPDA 4AN	RP	2-1/2, 3, 4, 6, 8	n-Flow, Z-Flow
RPDA2 4AN	RP	2-1/2, 3, 4, 6, 8	n-Flow, Z-Flow

H = Horizontal

V = Vertical

U-Flow or n-Flow = Orientation in which the horizontal supply pipe is elbowed vertically upward and subsequently horizontal, with the valve in-line horizontal, and then the discharge pipe is elbowed vertically downward and subsequently elbowed back to horizontal.

Z-Flow = Orientation in which the horizontal supply pipe is elbowed vertically upward where attachment to the inlet of the valve occurs. Water flows through the valve vertically upward through the horizontal check in the first stage. Water exits the first stage through a horizontal outlet and enters the second stage of the valve and passes through the second check valve that is vertically positioned. Water leaves the valve moving in the vertically upward direction. The discharge of the valve connects to a vertical elbow bringing the water flow back to horizontal.

DANFOSS FLOMATIC CORP

EX15270

15 PRUYN'S ISLAND DR, GLENS FALLS NY 12801

Backflow special check valves for a max. working pressure of 175 psi in the following models, types and sizes:

BACKFLOW SPECIAL CHECK VALVE DEVICES (BAEU)

Model	Type	Size In.	Installation Orientation
DCV	DC	2-1/2, 3, 4, 6, 8	H
RPZ	RP	2-1/2, 3, 4, 6, 8	H
FEBCO			
4381 N BRAWLEY AVE STE 102, FRESNO CA 93722			
Backflow special check valves for a max. working pressure of 175 psi in the following models, types, and sizes:			
Model	Type	Size In.	Installation Orientation
805 Type YD	DC	2-1/2, 3, 4, 6, 8, 10	H
806 Type YD	DC	3, 4, 6, 8, 10	H
825 Type YD	RP	2-1/2, 3, 4, 6, 8, 10	H
826 Type YD	RP	2-1/2, 3, 4, 6, 8, 10	H
830	DC	4	H, V
831	DCD	4	H, V
850	DC	2-1/2, 3, 4, 6, 8	H, V
856	DCD	2-1/2, 3, 4, 6, 8	H, V
860	RP	2-1/2, 3, 4, 6, 8	H
866	RP	2-1/2, 3, 4, 6, 8	H, V
870	DC	2-1/2, 3, 4, 6, 8, 10	H
870V	DC	2-1/2, 3, 4, 6, 8, 10	H, V
876	DC	2-1/2, 3, 4, 6, 8, 10	H
876V	DC	2-1/2, 3, 4, 6, 8, 10	H, V
880	RP	2-1/2, 3, 4, 6, 8, 10	H
880V	RP	2-1/2, 3, 4, 6, 8, 10	H, V
886V	RP	2-1/2, 3, 4, 6, 8	H
857	DC	2-1/2, 3	H
857DCDA	DCD	2-1/2, 3	H
867	RP	2-1/2, 3	H

EX2862

GRISWOLD INDUSTRIES, DBA CLA-VAL CO

EX2714

1701 PLACENTIA AVE, COSTA MESA CA 92627

Backflow special check valves for a maximum working pressure of 175, in the following models, types and sizes.

Model	Type	Size In.	Installation Orientation
RP-4	RP	3, 4, 6, 8, 10	H
D-4	DC	3, 4, 6, 8, 10	H

WATTS REGULATOR CO

EX3185

815 CHESTNUT ST, NORTH ANDOVER MA 01845

Model	Type	Size In.	Installation Orientation
719LF	DC	3/4, 1, 1-1/4, 1-1/2, 2	H, V
909	RP	2-1/2, 3, 4, 6, 8, 10	H
909RPDA	RPD	2-1/2, 3, 4, 6, 8, 10	H
709	DC	2-1/2, 3	H, V
709	DC	4, 6, 8, 10	H
709DCDA	DCD	2-1/2, 3	H, V
709DCDA	DCD	4, 6, 8, 10	H
773	DC	4, 6	H, V
773DCDA	DCD	4, 6	H, V
009RP	RP	2-1/2, 3	H
993	RP	4, 6	H, V
993RPDA	RPD	4, 6	H, V
007	DC	2-1/2, 3	H
007DC/DA	DCD	2, 2-1/2, 3	H
007M2LF	DC	3/4, 1-1/4, 1-1/2	H, V
007M1LF	DC	1, 2	H, V
009M2LF	RP	3/4, 1-1/4, 1-1/2, 2	H, V
009	RP	1	H, V
009-FP	RP	3/4, 1, 1-1/4, 1-1/2, 2	H, V
07-S	DC	1	H
007-FP	DC	3/4, 1, 1-1/4, 1-1/2, 2	H
007DCDA-FP	DCDA	3/4, 1, 1-1/4, 1-1/2, 2	H
774	DC	2-1/2, 3, 4, 6, 8, 10, 12	H, V



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2012 FIRE PROTECTION EQUIPMENT DIRECTORY

BACKFLOW SPECIAL CHECK VALVE DEVICES (BAEU)

Model	Type	Size In.	Installation Orientation
774X	DC	6, 8	H, V
774DCDA	DC	2-1/2, 3, 4, 6, 8, 10, 12	H, V
774XDCDA	DC	6, 8	H, V
994LF	RP	4, 6, 8, 10	H, V
994RPDA	RP	4, 6	H, V
995	RP	3, 4, 6	H
N995	RP	3, 4, 6	H
Z995	RP	3, 4, 6	H
995RPDA	RPD	3, 4, 6	H
N995RPDA	RPD	3, 4, 6	H
Z995RPDA	RPD	3, 4, 6	H
775	DC	3, 4, 6, 8	H, V
N775	DC	3, 4, 6, 8	H
775DCDA	DCD	3, 4, 6, 8	H, V
N775DCDA	DCD	3, 4, 6, 8	H
757	DC	2-1/2	H, V
		3	H, V
		4	H, V
		6	H, V
		8	H, V
		10	H, V
757N	DC	2-1/2	H
		3	H
		4	H
		6	H
		8	H
		10	H
767	DC	2-1/2	H, V
		3	H, V
		4	H, V
		6	H, V
		8	H, V
		10	H, V
767N	DC	2-1/2	H
		3	H
		4	H
		6	H
		8	H
		10	H
757a	DC	2-1/2	H, V
		3	H, V
		4	H, V
		6	H, V
757Na	DC	2-1/2	H
		3	H
		4	H
		6	H
767a	DC	2-1/2	H, V
		3	H, V
		4	H, V
767Na	DC	2-1/2	H
		3	H
		4	H
757DCDA	DCDA	2-1/2	H, V
		3	H, V
		4	H, V
		6	H, V
		8	H, V
		10	H, V
757N DCDA	DCDA	2-1/2	H
		3	H
		4	H
		6	H
		8	H
		10	H
767DCDA	DCDA	2-1/2	H, V
		3	H, V
		4	H, V
		6	H, V
		8	H, V
		10	H, V
767N DCDA	DCDA	2-1/2	H
		3	H
		4	H
		6	H
		8	H
		10	H
757a DCDA	DCDA	2-1/2	H, V
		3	H, V
		4	H, V
		6	H, V

BACKFLOW SPECIAL CHECK VALVE DEVICES (BAEU)

5

Model	Type	Size In.	Installation Orientation
757Na DCDA	DCDA	2-1/2	H
		3	H
		4	H
		6	H
767a DCDA	DCDA	2-1/2	H, V
		3	H, V
		4	H, V
767Na DCDA	DCDA	2-1/2	H
		3	H
		4	H
919 LF	RP	3/4, 1, 1-1/4, 1-1/2, 2	H, V
957	RP	2-1/2	H
		3	H
		4	H
		6	H
		8	H
		10	H
957N	RP	2-1/2	H
		3	H
		4	H
		6	H
		8	H
		10	H
957Z	RP	2-1/2	H
		3	H
		4	H
		6	H
		8	H
		10	H
967	RP	2-1/2	H
		3	H
		4	H
		6	H
		8	H
		10	H
967N	RP	2-1/2	H
		3	H
		4	H
		6	H
		8	H
		10	H
967Z	RP	2-1/2	H
		3	H
		4	H
		6	H
		8	H
		10	H
957 RPDA	RPDA	2-1/2	H
		3	H
		4	H
		6	H
		8	H
		10	H
957N RPDA	RPDA	2-1/2	H
		3	H
		4	H
		6	H
		8	H
		10	H
957Z RPDA	RPDA	2-1/2	H
		3	H
		4	H
		6	H
		8	H
		10	H
967 RPDA	RPDA	2-1/2	H
		3	H
		4	H
		6	H
		8	H
		10	H
967N RPDA	RPDA	2-1/2	H
		3	H
		4	H
		6	H
		8	H
		10	H
967Z RPDA	RPDA	2-1/2	H
		3	H
		4	H
		6	H



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6 BACKFLOW SPECIAL CHECK VALVE DEVICES (BAEU)

Model	Type	Size In.	Installation Orientation
		8	H
		10	H
994	RP	8, 10	HV
994RPDA	RPDA	8, 10	HV

ZURN INDUSTRIES INC WILKINS REGULATOR DIV EX3958
 1747 COMMERCE WAY, PASO ROBLES CA 93446

Backflow special check valve devices for a maximum working pressure of 175 psi in the following models, types and sizes:

Model	Type	Size In.	Installation Orientation
350L	DC	3/4, 1, 1-1/4, 1-1/2, 2	H, V
350LXL	DC	3/4, 1, 1-1/4, 1-1/2, 2	H, V
350	DC	2-1/2, 3, 4, 6, 8, 10	H, V
350	DC	12	H
350A	DC	2-1/2, 3, 4, 6, 8, 10	H, V
350AR	DC	2-1/2, 3, 4, 6, 8, 10	H, V
350AST	DC	2-1/2, 3, 4, 6, 8, 10	H, V
350ADA	DCD	2-1/2, 3, 4, 6, 8, 10	H, V
350ADAR	DCD	2-1/2, 3, 4, 6, 8, 10	H, V
350DA	DCD	2-1/2, 3, 4, 6, 8, 10	H, V
350DA	DCD	12	H
350ASTDA	DCD	2-1/2, 3, 4, 6, 8, 10	H, V
375L	RP	3/4, 1, 1-1/4, 1-1/2, 2	H
375LXL	RP	3/4, 1, 1-1/4, 1-1/2, 2	H
375	RP	2-1/2, 3, 4, 6, 8, 10	H
375A	RP	2-1/2, 3, 4, 6, 8, 10	H
375AR	RP	2-1/2, 3, 4, 6, 8, 10	H
375AST	RP	2-1/2, 3, 4, 6, 8, 10	H
375ADA	RPD	2-1/2, 3, 4, 6, 8, 10	H
375ADAR	RPD	2-1/2, 3, 4, 6, 8, 10	H
375DA	RPD	2-1/2, 3, 4, 6, 8, 10	H
375ASTDA	RPD	2-1/2, 3, 4, 6, 8, 10	H
450	DC	2-1/2, 3, 4, 6, 8, 10	H
450DA	DCD	4, 6, 8, 10	H
475	RP	2-1/2, 3, 4, 6, 8, 10	H
475DA	RPD	4, 6, 8, 10	H
475DAV	RPD	4, 6, 8, 10	V
475V	RP	2-1/2, 3, 4, 6, 8, 10	V
700FP	DC	1, 1-1/4, 1-1/2	H, V
950	DC	2-1/2, 3, 4, 6, 8, 10	H
950DA	DCD	2-1/2, 3, 4, 6, 8, 10	H
950LF	DC	3/4, 1, 1-1/4, 1-1/2, 2	H
950LLF	DC	3/4, 1, 1-1/4, 1-1/2, 2	H
950XL	DC	3/4, 1, 1-1/4, 1-1/2, 2	H
950XLTFB	DC	1-1/4, 1-1/2, 2	H, V
950XLTFSS	DC	1-1/4, 1-1/2, 2	H, V
950XLTD	DCD	2	H, V
950XLTDABF	DCD	2	H, V
950XLTDABFSS	DCD	2	H, V
975	RP	2-1/2, 3, 4, 6, 8, 10	H

BACKFLOW SPECIAL CHECK VALVE DEVICES (BAEU)

Model	Type	Size In.	Installation Orientation
975DA	RPD	2-1/2, 3, 4, 6, 8, 10	H
975LF	RP	3/4, 1, 1-1/4, 1-1/2, 2	H
975LLF	RP	3/4, 1, 1-1/4, 1-1/2, 2	H
975XL	RP	3/4, 1, 1-1/4, 1-1/2, 2	H

These devices have been evaluated for strength of body and friction loss only.

CENTRAL STATION AUTOMATION SYSTEM SOFTWARE (DAXW)

USE

This category covers central station automation system software intended to be installed on hardware that meets the specifications identified in the installation instructions provided by the software provider. The combination of hardware/software is used to automate the signal handling and processing of the alarm and trouble signals, and other signals, received by receivers in a central station.

ADDITIONAL INFORMATION

For additional information, see Security Equipment (ALOV).

REQUIREMENTS

The basic standard used to investigate products in this category is UL 1981, "Central-Station Automation Systems."

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:

CENTRAL STATION AUTOMATION SYSTEM SOFTWARE**Control No.**

Where indicated in the individual Classifications, the following statement is also included: "ALSO SUITABLE FOR USE AS A PROPRIETARY STATION AUTOMATION SYSTEM SOFTWARE."

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.

ABM DATA SYSTEMS**S5619**

SUITE 107 896 SUMMIT ST, ROUND ROCK TX 78664

ABM Data Command Center (DCC) Central Station Automation System Software version 4.4X, where "X" can be any alphanumeric character; Phoenix, and Phoenix 2000 Central Station Automation Systems version 3.X.X software, where "X" can be any alphanumeric character.

Central station automated event logging system software SignalSafe version 4.X.X.X., where "X" can be any digits 0 thru 99.

ADT SECURITY SERVICES INC**S9095**

1501 YAMATO RD, BOCA RATON FL 33431

Subsidiary and Central Station Bridge logging system software version 2.XX.XX.XXXX, where "XX.XX.XXXX" are the integers for the release date month, day, and year.

ADVANTOR SYSTEMS L L C**S25124**

SUITE 300 12612 CHALLENGER PKY, ORLANDO FL 32826

Central Station Automation System Software, Model *ASN 6.0.XX, where "X" can be any alphanumeric character.

*Note: Not Suitable for Fire, Medical and Industrial Supervision Events.

BOLD TECHNOLOGIES LTD**S5621**

421 WINDCHIME PL, COLORADO SPRINGS CO 80919

BOLD alarm processing software version 7.0X, 7.1 and 7.2.04 UL/ULC Central Station Automation System Software: where "X" can be any alphanumeric character.

Central Station Automation System Software: Bold Technologies, Ltd. Manitou Version 1.XX.XX, where "XX" can be any alpha-numeric character.

Central station automated records system software version, 1.XX, where XX can be any digit 0-99.

BOLD Stealth Logger printerless environment software version 1.XX, where XX can be any digit 0-99.



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CENTRAL STATION AUTOMATION SYSTEM SOFTWARE
(DAXW)

BOLD Watchdog software version 2.xx.xx where "x" can be any alphanumeric character.

BOSCH SECURITY SYSTEMS INC **S8878**
130 PERINTON PKY, FAIRPORT NY 14450

Central Station Automation System Software, Bosch Security Systems Inc., BIS Version 1.4.0 alarm monitoring software. Version 1.4.0 software is also suitable for proprietary, subsidiary, and remote station monitoring applications.

DENALECT INC **S6056**
1309 PINE ST PO BOX 5208, WALNUT CREEK CA 94596

Central Station Automation System Software: Denalect Inc. AMS-II, Version 2.XX alarm monitoring software, where "XX" can be any alphanumeric character.

DICE CORP **S7007**
1410 S VALLEY CENTER DR, BAY CITY MI 48706

Central
Dice Version 8, Release 3.0 Central Station Automation System Software. Virtual Paper V2.X automated event logging system, where "X" can be any alphanumeric character.

INNOVATIVE BUSINESS SOFTWARE INC **S6319**
SUITE 850 1320 GREENWAY DR, IRVING TX 75038

Central Station Automation System Software, Innovative Business Software, Inc. Version 07.XX.XXXX and 08.XX.XXXX Software, where XX, or XXXX can be any respective 2, or 4 digit numbers.

KASTLE SYSTEMS **S25067**
6402 ARLINGTON BLVD, FALLS CHURCH VA 22042

Kastle Systems zAnnunc/Annunicator Version 1.2.xx alarm monitoring software, where "x" can be any alphanumeric character.
Application is intended for the Listed, Kastle Systems, Falls Church, VA. central station only.

LENEL SYSTEMS INTERNATIONAL INC **S24409**
1212 PITTSFORD-VICTOR RD, PITTSFORD NY 14534

Lenel Systems International Inc., OnGuard 2008 Plus Version 6.1.xx and OnGuard 2009 Plus Version 6.x.xxx, Central Station Automation System Software, where "x" can be any Alphanumeric Character.

MICRO KEY SOFTWARE INC **S5620**
2ND FL 1631 E VINE ST, KISSIMMEE FL 34744

CS-1UL Central Station Automation Software Version Winter 1994 with 12/07/94 or later compile date.
Millenium Series Alarm Monitoring Software Version 5.0.XX.X, 5.1.XX.X, where "XX" can be any 2-digit number, and "X" can be any 1-digit number.
Virtual Printer event logger system software version 1.X.X.XX, where "X", or "XX" can be any integer value.

MONITAL SIGNAL CORP **S7421**
2210 LANDMARK PL, MANASQUAN NJ 08736

Central Station Automation System Software:
Data Command Center Version 4.4XX, where XX can be any digit 0-9.
Central Station automated event logging system software, Receiver Tape Logger version 2.X.X. where X can be any digit 0 thru 9 or letter A thru Z.

MONITOR COMPUTER SYSTEMS LTD **S8187**
MARLBOROUGH HOUSE YORK BUSINESS PARK,
WESTMINSTER PL, YORK YO26 6RW UNITED KINGDOM

Central Station Automation Systems alarm monitoring software Sentinel Plus Version 3.XX.XXX where "XX" and "XXX" can be any alphanumeric character.

PATRIOT SYSTEMS LTD **S9070**
LEVEL 1 46 CHILDERS RD PO BOX 1295, GISBORNE 3801 NEW ZEALAND

Central Station Automation System Software: Patriot Systems Ltd., Patriot 5, Version Patriot 5.1, Build xxxxxx and Version Patriot 5.x, Build xxxxxx (where xxxxxx = 220905 or later date) alarm monitoring software.

SECURE GLOBAL SOLUTIONS L L C **S24548**
SUITE 200 41 CORPORATE PARK DR, IRVINE CA 92606

Secure Global Solutions LLC, stages Version 2.x.xx, Central Station Automation System Software, where "x" can be any alphanumeric character.

CENTRAL STATION AUTOMATION SYSTEM SOFTWARE (DAXW) 7

SECURITY ASSOCIATES INTERNATIONAL INC **S8035**
SUITE 150 2101 S ARLINGTON HEIGHTS RD, ARLINGTON HEIGHTS IL 60005

Central Station Automated Logging and Viewer System Software, Security Associates International, Inc., Version 2.1.XX, where XX can be any digits 0-99.

SECURITY INFORMATION & MANAGEMENT SYSTEMS INC **S6039**
SUITE 5 2801 W PARKER RD, PLANO TX 75023

Central Station Automation System Software, Central Station Monitoring CSM version 6.0X software; and Security Information & Management System (SIMS II) version 1.3X software. Where "X" can be any alphanumeric character.

Central Station automated event logging system software Vapor Paper version 2.XXX.XXX, where the first and second "XXX" can be any alphanumeric character.

SECURITY INFORMATION SYSTEMS INC **S5622**
#3 6314 KINGSPONTE PKY, ORLANDO FL 32819

Central Station Automation System Software, Alarm Center Monitoring Dispatch Module Version 4.XX software, where "XX" can be any alphanumeric characters. The minimum acceptable version is 4.10.

Alarm Center For Windows Version 1.1 or higher alarm monitoring software.

STANLEY CONVERGENT SECURITY SOLUTIONS INC **S24571**
SUITE 500 1707 ORLANDO CENTRAL PKY, ORLANDO FL 32809

Sonitrol Corp SonIP Version 2.2.xxxx.x, Central Station Automation System Software, where "x" can be any alphanumeric character.

SUREVIEW SYSTEMS L L C **S24522**
SUITE 2600 400 N ASHLEY DR, TAMPA FL 33602

SureView Immix Version 18.x.x.xx Central Station Automation System alarm processing software, where "x" can be any alphanumeric character.

UTC FIRE & SECURITY AMERICAS CORPORATION, INC. **S6125**
2955 REDHILL AVE, COSTA MESA CA 92626

Central station automation system software, Monitoring Automation Systems version 5.50.XX software, where "X" can be 10 or greater two-digit number, and version 6.XX.XX, where XX.XX can be any four digit number greater than or equal to 01.13.

WESTEC INTELLIGENT SURVEILLANCE INC **S24930**
SUITE 116 1089 JORDAN CREEK PKY, WEST DES MOINES IA 50266-5829

Westec Intelligent Surveillance Inc., C3 Operator Software Version 3.x.x.xx and WAR Version 1.x.x.x, where "x" can be any Alphanumeric Character.

COTTON BATTING (ELID)

GENERAL

This category covers fire-retardant-treated cotton batting intended for use in mattresses, futons and upholstered furniture.

The cotton batting has been investigated in accordance with the flame-resistance and smolder-resistance requirements of the following test methods:

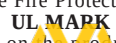
1. UFAC Filling/ Padding Component Test Method (1990), Part A for Slab or Garnetted Materials,
2. State of California, Department of Consumer Affairs, Bureau of Home Furnishings and Thermal Insulation, Technical Bulletin 117, Section B, Part 1 (March 2000); Non-Man Made Filling Materials, and
3. State of California, Department of Consumer Affairs, Bureau of Home Furnishings and Thermal Insulation, Technical Bulletin 117, Section D, Part 1 (March 2000); Resilient Filling Materials – Cigarette Resistance.

The toxicity of the products of combustion have not been investigated. The effects of aging and wear on the fire-retardant characteristics of these products have not been investigated. These products incorporate water-soluble salts which may be affected by repeated exposure to water or conditions that may result in the condensation of water.

Authorities Having Jurisdiction should be consulted as to the specific requirements covering the acceptance and use of these products in the intended occupancies.

ADDITIONAL INFORMATION

For additional information, see Fire Protection Equipment (AAPP).

The Classification Mark of UL on the product or on a bulk shipment certificate is the only method provided by UL to identify products.  **Documents** 

tured 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:

**COTTON BATTING
IN ACCORDANCE WITH
UFAC FILLING/PADDING COMPONENT TEST METHOD - 1990
AND
CALIFORNIA TECHNICAL BULLETIN 117 SECTION B, PART 1 AND
SECTION D, PART 1 MARCH 2000
Control No.**

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JONES FIBER PRODUCTS INC **R18992**
1184 CHANNEL AVE PO BOX 13212, MEMPHIS TN 38113

UNION FELT **R20637**
3636 WESTON RD, WESTON, ON M9L 1W3 CANADA

ELECTRICAL EQUIPMENT FOR FIRE SERVICE USE (FHOM)

Listings covered by this category are intended for use by trained personnel in rescue and fire fighting operations in conjunction with an apparatus. Only equipment marked with a hazardous Class and Location are suitable for use in hazardous locations.

All products are marked indicating the location where they can be used:

A product marked for use in "Wet Locations" is suitable for use in Wet or Damp Locations unless otherwise marked.

A product marked "Type 4" is also suitable for use in a Wet Location or a Damp Location, unless otherwise marked.

Wet Location. A location inside a compartment with a door or cover that while opened exposes the equipment to the exterior of the fire apparatus. A location on a nonenclosed exterior surface of a fire apparatus that is exposed to the environment.

Type 4 Rating. A rating for electrical equipment that is suitable for outdoor use to provide a degree of protection for falling rain, splashing water, and hose directed water. Equipment rated Type 4 will be undamaged by the formation of ice on the equipment, and is suitable for locations such as underbody or under chassis locations subject to road spray.

Products covered under this category are investigated in accordance with the requirements of NFPA 901, and the indicated Standards of UL.

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SCENE LIGHTS (FHTD) GENERAL

This category covers scene lights, which are portable or permanently fixed to an apparatus, and intended to illuminate the work, operation, or rescue areas during a response to an emergency. The illumination source may be incandescent, quartz halogen, fluorescent, or high intensity discharge lamps. All scene lights are suitable for use in wet locations.

Scene lights may be manufactured as fittings. Fittings are incomplete parts and/or subassemblies intended for final assembly in the field as identified on the installation instructions that accompany each fitting.

ADDITIONAL INFORMATION

For additional information, see Electrical Equipment for Fire Service Use (FHOM) and Fire Protection Equipment (AAFP).

REQUIREMENTS

The basic standards used to investigate products in this category are UL 153, "Portable Electric Luminaires," and UL 1598, "Luminaires."

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 "Scene Light" or "Scene Light Fitting."

Scene Lights (FHTD)—Continued

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AKRON BRASS CO **E185779**
501 N CUMMINGS LN, WASHINGTON IL 61571
Scene lights, Cat. Nos. Permanent Mount and Pole Mount "E" Series; Portable "E-POD-PL" Series.

FIRE RESEARCH CORP **E151210**
26 SOUTHERN BLVD, NESCONSET NY 11767
Scenelight fittings, Quartz halogen floodlights DT500 Series, Focus Series L, -M, -S, LT-500 Series, PL Series, PL500 Series, QL-500 Series, TC500 Series.

WHELEN ENGINEERING CO INC **E336894**
RTE 145 WINTHROP RD, CHESTER CT 06412
Scene lights, Cat. Nos. Pioneer 75W, Pioneer Plus 150W.
LED Scene light, Cat. No. Pioneer Plus 300W.

EMERGENCY ALARM EQUIPMENT (FSVW)

This category covers equipment intended to operate during an emergency condition to alert occupants in the area of emergencies associated with property and/or life safety. Examples of emergencies include (1) the unintended presence of gases or vapors in excess of specified concentrations, (2) transmitting a signal to a remote location, and/or (3) activating other equipment for remedial action. Unless specifically described in the individual Listings, this equipment has not been investigated for use as part of a fire alarm signaling system or a security system.

In addition to investigation for potential risks of fire and electric shock, the equipment is investigated for reliability of operation, resistance to unwanted operation, and accuracy of critical measurements, as appropriate. This investigation is conducted using the installation wiring diagrams and instruction manuals provided with the equipment as a guide.

This equipment has only been investigated for use in unclassified (ordinary) locations as defined in ANSI/NFPA 70, "National Electrical Code."

Unless otherwise noted, this equipment has only been investigated for use under normal atmospheric conditions. The gases and vapors to which the equipment is intended to respond are indicated on the equipment and in the individual Listings.

The equipment is intended to be installed in accordance with ANSI/NFPA 70 and other nationally recognized codes that regulate the storage, handling and use of the materials present at the installation.

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.

GAS AND VAPOR DETECTORS AND SENSORS (FTAM) GENERAL

This category covers detectors and sensors intended to detect the presence of gases and vapors in the area in which they are installed. The gases and vapors for which these detectors have been investigated are described in the individual Listings, together with the extent of the areas protected by individual detectors.

These sensors and detectors are intended to be connected to an emergency alarm system control unit, which is used to generate a system alarm signal upon sensing an alarm condition from the gas detector. The detector may operate by activating a signal at a given concentration of vapor. The sensor may transmit information defining the concentration level to the control unit which, in turn, determines when to generate a system alarm signal. Detectors that transmit concentration level information have only been investigated with compatible control units as shown in the individual Listings.

This equipment has only been investigated for use as defined in ANSI/NFPA 70, "National Electrical Code."

The installation wiring diagrams and instruction manuals provided with these detectors were used as a guide under which the equipment was investigated. These documents include information describing the proper installation, operation, maintenance and testing of the detector.

EMERGENCY ALARM EQUIPMENT (FSVW)

ING" above the UL symbol (as illustrated in the Introduction of this Directory), and the following additional information:

**CO DETECTOR TEST GAS ACCESSORY
FOR USE WITH
UL LISTED GAS DETECTOR(S) AND/OR SENSOR(S)
IDENTIFIED IN THE INSTALLATION INSTRUCTIONS
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.

HOME SAFEGUARD INDUSTRIES L L C E328172
107 GARLISCH DR, ELK GROVE IL 60007

Aerosol tester spray, CO Check Model HO-CO2. For carbon monoxide entry and alarm actuation per NFPA72, paragraph 14.4.2.2-14H. Not for a sensitivity check. May be used alone or in conjunction with a Certified (FTAQ) Model VT-ED8 or VT-ED16 test kit consisting of a Certified (FTAQ) Model HO-VT1-aerosol dispenser head and Model HO-VP8 or HO-VP16 extension pole.

HOME SAFEGUARD INDUSTRIES L L C S3753
107 GARLISCH DR, ELK GROVE IL 60007

Carbon monoxide detector testers, Versa-Tools Models HO-VT1, HO-VP8, HO-VP16, VT-ED8 and VT-ED16 for use with Certified (FTAQ) carbon monoxide detector tester spray model HO-CO2. For carbon monoxide entry and alarm actuation per NFPA72, paragraph 14.4.2.2-14H. Not for a sensitivity check. Models HO-VT1, HO-VP8, HO-VP16, VT-ED8 and VT-ED16 are primary Listed (URRQ) for use with Listed (URRQ) smoke detector spray models 25S and 66E. Model VT-ED8 is a kit consisting of Model HO-VT1 and Model HO-VP8. Model VT-ED16 is a kit consisting of Model HO-VT1 and HO-VP16.

NO CLIMB PRODUCTS LTD E320743
EDISON HOUSE 163 DIXONS HILL RD, WELHAM GREEN,
HERTFORDSHIRE AL9 7JE UNITED KINGDOM

Aerosol tester spray, Model Solo C6-XXX*, where XXX may denote a 3-character numeral sequence relating only to the route to market.

* Hazards and application of the pressurized container have not been investigated.

SDI L L C E325586
1345 CAMPUS PKY, NEPTUNE NJ 07753

Aerosol tester spray, Model Solo C6-XXX*, where XXX may denote a 3-character numeral sequence relating only to the route to market.

* Hazards and application of the pressurized container have not been investigated.

EMERGENCY ALARM SYSTEM ACCESSORIES (FSYE)

USE

This category covers products intended for connection to an emergency alarm system control unit to form an emergency alarm system. They may be required system products or provide supplementary annunciation of alarm and trouble conditions, activate remote equipment, or provide some other system function as indicated by the installation wiring diagram applying to its application.

The associated property- and/or life-safety alarm nature of the products are categorized as follows:

Type UM (User-monitored) — Devices intended to be monitored and tested by the user. These devices are intended for household use or are personal signaling devices carried by the user.

Type SM (Self-monitored) — Devices intended to be self-monitoring. These devices are intended for, but not limited to, commercial use.

Type AM (Attendant-monitored) — Devices intended to be constantly operated and maintained by competent and experienced personnel, either locally or at a remote station.

PRODUCT MARKINGS

Each accessory is identified by a model designation or equivalent, and this designation is marked on the product. The manufacturer is required to label 100% of all production for those model designations shown in the individual Listings.

Each product is marked to indicate its intended use. This consists of the specific use description as indicated in the individual Listings, and the type category (Type UM, SM, and/or AM).

EMERGENCY ALARM SYSTEM ACCESSORIES (FSYE)

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RELATED PRODUCTS

See Emergency Alarm Equipment (FSVW).

ADDITIONAL INFORMATION

For additional information, see Fire Protection Equipment (AAFP).

REQUIREMENTS

The basic standard used to investigate products in this category is ANSI/UL 1017, "General-Purpose Signaling Devices and Systems."

UL MARK

The Signaling Listing Mark of UL on the product or 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 Signaling Listing Mark for these products includes the UL symbol with the word "SIGNALING" above the UL symbol and the word "LISTED" below the UL symbol (as illustrated in the Introduction of this Directory), a control number, and the product name "Emergency Signaling Equipment" or "Emergency Signaling Subassembly."

When applicable, the Security Mark is also included. The combined Signaling/Security Listing Mark consists of the Signaling Mark elements detailed above and the word "SECURITY" above the UL symbol. The product name is "Emergency Signaling and Security Equipment" or "Emergency Signaling and Security Subassembly."

Some of these products are also Listed under other Signaling and Energy Management, Information Technology or Telephone categories. When applicable, the product name may include "and Hospital Signaling and Nurse Call," "and General Signaling," "and Enclosed Energy Management," "and Information Technology" or "and Telephone," as appropriate (e.g., "Emergency Signaling and Telephone Equipment").

The product name may be abbreviated as follows: The word "Type:" followed by the appropriate Type Code (as shown below), additionally followed by "Subassembly," as applicable.

Type Codes:

- S – Security Equipment
- HN – Hospital Signaling and Nurse Call Equipment
- G – General Signaling Equipment
- E – Emergency Signaling Equipment
- EM – Enclosed Energy Management Equipment
- IT – Information Technology Equipment
- T – Telephone Equipment

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ADT SECURITY SERVICES INC S232
ENGINEERING SERVICES SUITE 800 930 N RIVERVIEW DR,
TOWSON NJ 07512

Annunciator modules, Models ADT-ANN-LED (1), ADT-ANN-RLED (1).
Relay module, Model ADT-ANN-RLY (1).

(1) These models are complementary Listed to QVAX, SYSW and UOXX.

BEIJING SIEMENS CERBERUS ELECTRONICS LTD S24304
#1 FENG ZHI DONG LU, XI BE WANG HAIDIAN DISTRICT
100094, BEIJING CHINA
Type SM addressable output module, Model BDS221A.

BOSCH SECURITY SYSTEMS INC S5579
130 PERINTON PKY, FAIRPORT NY 14450
Type SM remote annunciators, Models FMR-1000-RA, FMR-1000-RCMD.

EDWARDS, A DIV OF UTC FIRE & SECURITY AMERICAS S3424
CORPORATION, INC.
8985 TOWN CENTER PKY, BRADENTON FL 34202
Type SM millennium system, Model(1) 5541M-Y6.
Type SM temporal pattern generator, Model(2) SIGA-TCDR.
(1) This model is complementary Listed to UOXX.
(2) This model is complementary Listed to UOXX, UOXXC.

FIRE-LITE ALARMS S2424
1 FIRE-LITE PL, NORTHFORD CT 06472
Annunciator modules, Models (1) ANN-LED, ANN-RLED.
Relay module, Model (1) ANN-RLY.
(1) These models are complementary Listed to QVAX, SYSW and UOXX.

GAMEWELL-FCI S1145
12 CLINTONVILLE RD, NORTHFORD CT 06472
Annunciator modules, Models (4) GANN-LED, GANN-RLED, GANN-RT-EN, GANN-RT-EN

Documents

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12 EMERGENCY ALARM SYSTEM ACCESSORIES (FSYE)

Relay module, Model (1) GFANN-RLY.

(1) These models are complementary Listed to QVAX, SYSW and UOXX.

HOME SAFEGUARD INDUSTRIES L L C S24191

107 GARLISCH DR, ELK GROVE IL 60007

Type SM ground filter, Model INL06000.

MELINK CORP E130956

5140 RIVER VALLEY RD, MILFORD OH 45150

Intelli-Hood II system, Type SM consisting of: I/O Processor, keypad, temperature sensor, and optic sensor (Photoelectric transmitter and receiver) with Air Purge Unit. Designed and manufactured for the detection of heat and/or smoke in commercial kitchen exhaust ventilation systems.

NOTIFIER S635

12 CLINTONVILLE RD, NORTHFORD CT 06472

Annunciator modules, Models (1) N-ANN-LED, N-ANN-RLED.

Relay module, Model (1) N-ANN-RLY.

Remote annunciator, Model N-ANN-I/O*.

Serial/parallel interface, Model N-ANN-S/PG+.

(1) These models are complementary Listed to QVAX, SYSW and UOXX.

+Complementary Listed under QVAX, UOXX, UOXXC.

* - Intended for use with specific control units as indicated in control unit installation manual.

SAFETY TECHNOLOGY INTERNATIONAL INC S7255

2306 AIRPORT RD, WATERFORD MI 48327

Universal button signaling stations, Models UB-1, UB-2. Intended for indoor use. The 'Emergency' message tab may be employed on Models UB-1 and UB-2 when used in a system with a Listed, compatible Releasing Device.

SIGNAL COMMUNICATIONS CORP S3275

PO BOX 2588, WOBURN MA 01888

Type SM: EVAC Systems, Models DVS+050 - (1 to 20)(Z or 0) - 00(B or 0), DVS+100 - (1 to 20)(Z or 0) - 00(B or 0), DVS+150 - (1 to 20)(Z or 0) - 00(B or 0) and DVS+200 - (1 to 20)(Z or 0) - 00(B or 0) Voice/Tone Evacuation Systems.

SILENT KNIGHT BY HONEYWELL S3511

7550 MERIDIAN CIR, MAPLE GROVE MN 55369

Remote annunciator, Model 5880+*.

Serial/parallel interface, Model 5824+.

+Complementary Listed under QVAX, UOXX, UOXXC.

* - Intended for use with Model 5820 control units.

SIMPLEX TIME RECORDER CO S771

50 TECHNOLOGY DR, WESTMINSTER MA 01441

Type SM control unit interface modules, Models CCU3-XLG-AUD, CCU3/C-HUB, CCU3/IO, XLG-SS2-UL, CCU3/C-4100, CCU3/C-INA, CCU3/C-ISIB, and CCU3/C-XLG.

All models are complementary Listed to UOXX and UOXXC.

EMERGENCY ALARM SYSTEM CONTROL UNITS (FSZI)

USE

This category covers units intended to be connected to suitable detection and/or initiating devices designed to sense the presence of hazardous vapors, liquids, or materials, or other emergency conditions. Upon recognition of an alarm condition, the control unit activates suitable output devices and alarm annunciators.

The associated property- and/or life-safety alarm nature of the products are categorized as follows:

Type UM (User-monitored) — Devices intended to be monitored and tested by the user. These devices are intended for household use or are personal signaling devices carried by the user.

Type SM (Self-monitored) — Devices intended to be self-monitoring. These devices are intended for, but not limited to, commercial use.

Type AM (Attendant-monitored) — Devices intended to be constantly operated and maintained by competent and experienced personnel, either locally or at a remote station.

INSTALLATION INSTRUCTIONS

The installation wiring diagrams and instruction manuals provided with these control units, and referenced by drawing number and issue number or revision level in the marking of the particular unit, were used as a guide under which the units were investigated. These documents include information describing the proper installation, operation, maintenance and testing of

EMERGENCY ALARM SYSTEM CONTROL UNITS (FSZI)

the control unit, and identify the components, such as sensors and detectors, needed to make a complete system. The installation wiring diagram identifies the electrical supervision provided by the control unit, along with details on the standby power requirements, if provided.

Unless otherwise noted, emergency alarm system wiring has means to be electrically supervised so that a single open or a single ground on any field-installed wiring, which may prevent required operation of the system, will be indicated by an audible trouble signal.

PRODUCT MARKINGS

Each control unit is identified by a model designation or equivalent, and this designation is marked on the product. The manufacturer is required to label 100% of all production for those model designations shown in the individual Listings.

Each product is marked to indicate its intended use. This consists of the specific use description as indicated in the individual Listings, and the type category (Type UM, SM and/or AM).

RELATED PRODUCTS

See Emergency Alarm Equipment (FSVW).

ADDITIONAL INFORMATION

For additional information, see Fire Protection Equipment (AAFP).

REQUIREMENTS

The basic standard used to investigate products in this category is ANSI/UL 1717, "General-Purpose Signaling Devices and Systems."

UL MARK

The Signaling Listing Mark of UL on the product or 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 Signaling Listing Mark for these products includes the UL symbol with the word "SIGNALING" above the UL symbol and the word "LISTED" below the UL symbol (as illustrated in the Introduction of this Directory), a control number, and the product name "Emergency Signaling Equipment" or "Emergency Signaling Subassembly."

When applicable, the Security Mark is also included. The combined Signaling/Security Listing Mark consists of the Signaling Mark elements detailed above and the word "SECURITY" above the UL symbol. The product name is "Emergency Signaling and Security Equipment" or "Emergency Signaling and Security Subassembly."

Some of these products are also Listed under other Signaling and Energy Management, Information Technology or Telephone categories. When applicable, the product name may include "and Hospital Signaling and Nurse Call," "and General Signaling," "and Enclosed Energy Management," "and Information Technology" or "and Telephone," as appropriate (e.g., "Emergency Signaling and Telephone Equipment").

The product name may be abbreviated as follows: The word "Type:" followed by the appropriate Type Code (as shown below), additionally followed by "Subassembly," as applicable.

Type Codes:

S – Security Equipment

HN – Hospital Signaling and Nurse Call Equipment

G – General Signaling Equipment

E – Emergency Signaling Equipment

EM – Enclosed Energy Management Equipment

IT – Information Technology Equipment

T – Telephone 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.

ADT SECURITY SERVICES INC S232

ENGINEERING SERVICES SUITE 800 930 N RIVERVIEW DR,
TOWSON NJ 07512

Type AM and SM control units, Models (1) Unimode 5UD, Unimode 10UD. Automatically or manually actuated to produce local alarm annunciation due to the following conditions: Hazard/Tornado, Medical Alert.

Models (1) Unimode-200UDLS, Unimode-9050UD. Automatically or manually actuated to produce local alarm annunciation due to the following conditions: Hazard and Medical Alert.

(1) These models are complementary Listed to QVAX and UOJZ.

ALDERON INDUSTRIES L L C S7447

110 15TH ST S PO BOX 827, HAWLEY MN 56549

Type UM: Versa'larm Part Nos. VA or WS, followed by a 0, H or L, may be followed by a 1.

Versa'larm 4X Part No. VA4X, followed by a 0, H or L, may be followed by a 1.

Versa'larm PC Part No. VAPC, followed by a 0, H or L, may be followed by a 1.

Waterspatter Part No. WS160, followed by a -10, -15, -20, -30, -40 or -50. Model ALM-P1.



Documents

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EMERGENCY ALARM SYSTEM CONTROL UNITS (FSZI)

BEIJING SIEMENS CERBERUS ELECTRONICS LTD S24104
 #1 FENG ZHI DONG LU, XI BE WANG HAIDIAN DISTRICT
 100094, BEIJING CHINA
Control units, Models BC8001A and BC8002A control units for critical process management.

BOSCH SECURITY SYSTEMS INC S1871
 130 PERINTON PKY, FAIRPORT NY 14450
Type SM control units, Models FPA-1000-UL, FPA-1000-V2.

EDWARDS, A DIV OF UTC FIRE & SECURITY AMERICAS S3000
 CORPORATION, INC.
 8985 TOWN CENTER PKY, BRADENTON FL 34202
Type SM control units (++), Models EST3, JB-TBZL-EST3, EST3R, EST3-230, EST200, EST200R, EST200-2, EST200R-2 Fire Alarm, Security and Emergency Signaling Equipment. Automatically or manually actuated to produce local alarm annunciation due to the following conditions: Smoke, Heat or Carbon Monoxide (CO).
 ++ Complementary Listed under ALVY, AMCX, ANET, AOTX, APAW, APOU, UOJZ, SYZV, PGWM and UUKL.

FIKE CORP S2203
 704 S 10TH ST PO BOX 610, BLUE SPRINGS MO 64015
Type SM and AM control units, Models CyberCat 254, 1016 and Cheetah Xi, suitable for critical process monitoring.
Type SM and AM control units, Models CyberCat 50 and Cheetah Xi 50, suitable for critical process monitoring.
Subassemblies:
Power supplies, 10-2474-p, 10-2474-ISO-X supplemental power supply (SPS).
Loop module, 10-2473 supplemental loop module (SLM).
Network modules, 10-2624 and 10-2482 Control Module, 10-2482.
Input/Output module, 10-2659.
Graphic smoke control/Switch/LED driver modules, 10-2663 and 10-2665.
Relay control modules, Models 10-2778, 10-2785.
Relay control assembly, Model 10-2777.
Bus card, Model 10-2769.
Relay card, Model 10-2770.

FIRE-LITE ALARMS S624
 1 FIRE-LITE PL, NORTHFORD CT 06472
Type AM and SM control units, Models (f1) MS-5UD-3, MS-5UD-3E, MS-5UD-7, MS-5UD-7C, MS-5UD-7C-FR, MS-5UD-7E, MS-10UD-3, MS-10UD-3E, MS-10UD-7, MS-10UD-7C, MS-10UD-7C-FR, MS-10UD-7E. Automatically or manually actuated to produce local alarm annunciation due to the following conditions: Hazard/Tornado and Medical Alert.
 Models MS-9200UDLS (f1), MS-9200UDLSE (f1). Automatically or manually actuated to produce local alarm annunciation due to the following conditions: Hazard/Tornado and Medical Alert.
 Models MS-9050UD(f1), MS-9050UDE(f2). Automatically or manually actuated to produce local alarm annunciation due to the following conditions: Hazard and Medical Alert.
Subassemblies, Models XRM-24B, XRM-24BE Transformers. Intended for use with compatible control units as described in the control unit installation manual.
 Model CAC-5X (f1) class A conversion module. Intended for use with compatible control units as described in the control unit installation manual.
 Models FLPS-3 (f1), FLPS-7 (f1) power supply modules. Intended for use with compatible control units as described in the control unit installation manual.
 Model ZNAC-92(f2) class A conversion module. Intended for use with compatible control units as described in the control unit installation manual.
 (f1) These models are complementary Listed to QVAX and UOJZ.
 (f2) These models are complementary Listed to DAYRC, QVAX, UOJZ and UOJZC.

GAMEWELL-FCI S1869
 12 CLINTONVILLE RD, NORTHFORD CT 06472
Control units, Models(1) GF505, GF510. Automatically or manually actuated to produce local alarm annunciation due to the following conditions: Hazard/Tornado, Medical Alert.
 (1) These models are complementary Listed to QVAX and UOJZ.

HONEYWELL INTERNATIONAL INC S470
 BLDG D 95 E ALGONQUIN RD, DES PLAINES IL 60017
Type AM/SM control unit, Model (1) DeltaNet/FS90 Commercial Fire Alarm and Security system. Automatically or manually actuated to produce local alarm annunciation due to the following conditions: smoke or heat.

EMERGENCY ALARM SYSTEM CONTROL UNITS (FSZI) 13

(1) These models are complementary Listed to QVAX, UOJZ, UUKL, APOU, ALVY, UOJZC, FSZI.

NOTIFIER S635
 12 CLINTONVILLE RD, NORTHFORD CT 06472
Control units, Models (1) SFP-5UD, SFP-10UD, SFP-5UDE, SFP-10UDE, SFP-10UDC, SFP-5UDC. Automatically or manually actuated to produce local alarm annunciation due to the following conditions: Hazard/Tornado, Medical Alert.
Sub-assembly - class A conversion modules, Model (1) N-CAC-5X. Intended for use with compatible control units as described in the individual control unit installation manual.
Type AM and SM control units, Models(2) FireWarden-50, FireWarden-50E. Automatically or manually actuated to produce local alarm annunciation due to the following conditions: Hazard and Medical Alert.
 Models FireWarden-100-2, FireWarden-100-2E.
 Models (2) NFS2-3030, NFS2-3030E, XLS3000 Fire Alarm Control units. Automatically actuated to produce local alarm annunciation due to the following conditions: Carbon Monoxide.
 (1) These models are complementary Listed to QVAX and UOJZ.
 (2) These models are complementary Listed to DAYRC, QVAX, UOJZ and UOJZC.

PACOM SYSTEMS NORTH AMERICA BP9406
 BLDG D 339 INTERSTATE BLVD, SARASOTA FL 34240
Emergency alarm system control unit: Base station or TransIT. protected premises unit: Model 1058 RTU.
Emergency alarm system control unit accessories: Models 1064 Interface card and 1065-IO with 1050-003 card.
Emergency alarm system control unit enclosures: Models 1060-10PD, 1010-10PD, 1064-10PD and ENCL-1058A.
Type AM (attendant-monitored): Devices intended to be constantly operated and maintained by competent and experienced personnel, either locally or at a remote station.

SILENT KNIGHT BY HONEYWELL S2766
 7550 MERIDIAN CIR, MAPLE GROVE MN 55369
 Models (1) SK-5UD, SK-5UDE. Control units. Automatically or manually actuated to produce local alarm annunciation due to the following conditions: Hazard/Tornado, Medical Alert.
 (1) These models are complementary Listed to QVAX and UOJZ.

SIMPLEX TIME RECORDER CO S771
 50 TECHNOLOGY DR, WESTMINSTER MA 01441
Control units, Models(1) 4100-9111, -9112, -9113, -9114, -9115, -9116, -9121, -9122, -9131, -9132, -9133, -9211, -9212, -9213, -9222, -9230, -9600, -9601, -9602. Automatically actuated to produce local alarm annunciation due to the following conditions: Carbon Monoxide.
Control units, "4010ES Variances" Models 4010-9501, -9502, -9503, -9504, -9521, -9522, -9523, -9524, -9527, -9528, -9529, and -9530.
 Models 4010-9401, -9402, -9403, -9404, -9405, -9406, -9421, -9422, -9425, -9426, -9525 and -9526.
 Models 4010-9401BA, -9402BA, -9501BA, -9502BA, -9503BA, -9504BA, -9421BA, -9422BA, -9425BA, -9426BA, -9521BA, -9522BA, -9523BA, -9524BA, -9525BA, -9526BA, -9527BA, -9528BA, -9529BA, and -9530BA *.
 * Note: "BA" at the end of the model number designates "built in America"
 (1) These models are complementary Listed to QVAX, UOQY, APOU, UOXX, UULH, UUKL, SYZV and UOJZ.

SJE RHOMBUS S2114
 22650 COUNTY HWY 6, DETROIT LAKES MN 56501
Type UM, Models Series 101, Series TA-XT, Tank alert series TAAB-01H, TAAB-01L, TAAB-01X.

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

The following information relates to extinguishers, extinguishing agents and extinguishing system units.

Portable extinguishers are rated according to their fire extinguishing potential which is indicated by NUMERAL and LETTER designations. The LETTER designates the general class of fire for which the extinguisher is suitable, and the NUMERAL indicates the approximate relative extinguishing potential of the device.

Class A fires are defined as fires in ordinary combustible materials such as wood, cloth, and paper where the "quenching/cooling" effect of quantities of water or solutions containing large percentages of water is effective in reducing the temperature of the burning material below the ignition temperature and is, therefore, of first importance.

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

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Class B fires are defined as fires in flammable liquids, combustible liquids, petroleum greases, tars, oils, oil-based paints, solvents, lacquers, alcohols and flammable gases.

Class C fires are defined as fires involving electrical equipment where the electrical nonconductivity of the extinguishing agent is of first importance.

Class D fires are defined as fires in combustible metals, such as magnesium, titanium, zirconium, sodium, potassium, etc.

Class K fires are defined as fires in cooking appliances that involve combustible cooking media (vegetable or animal oils and fats).

The numerical portion of Class A ratings of hand extinguishers is developed on the basis of comparative fire tests using various sizes of wood crib, wood panel and excelsior fires.

For example, 1-A, 2-A, 3-A and 4-A extinguishers must be capable of consistently extinguishing vertical wood panel fires having areas of 8x8 ft, 10x10 ft, 12x12 ft, and 14x14 ft, respectively. The numerical portion of Class A ratings of wheeled extinguishers is developed on the basis of wood crib fires only. The size of crib is determined by logarithmic plots of enclosed volume and exposed surface area of the lumber used in the test fires versus the Class A rating.

The numerical portion of Class B ratings of extinguishers is developed on the basis of fire tests using square steel pans in specific size increments and a fuel which is essentially equal to ordinary motor fuel (regular gasoline). Indoor test fire sizes are 2-1/2, 5, 12-1/2, 25 and 50 sq ft, and outdoor fire sizes are 100, 200, 300, 400, 600, 800, 1200 and 1600 sq ft. The fire extinguishing classification is equivalent to 40% of the area of fire consistently extinguished by an expert operator. The NUMERAL thus derived is an approximate indication of the relative fire extinguishing potential of the extinguisher.

The fire extinguishing classifications of these extinguishers are developed at normal ambient temperature (approximately 70°F) and may be reduced at lower temperatures.

There are no numerical components for Class C ratings of extinguishers, as only the electrical nonconducting characteristics of the agent are significant, and no effort is made to indicate the amount of electrical fire for which an extinguisher is suitable.

Extinguishers and agents for use on Class D (combustible metals) fires are rated for the amount of agent needed to control a particular quantity and type of metal.

Extinguishers and agents for use on Class K (combustible cooking media) fires are rated for the amount of agent needed to extinguish a particular quantity and surface area of vegetable oil.

Extinguishers classed as "Marine Type" have been investigated in accordance with the applicable sections of the Code of Federal Regulations, Title 46 (shipping), Chapter I, Subchapter Q, Sub-part 162.028, in addition to the usual tests conducted by UL. Listed "Marine Type" extinguishers are identified by the wording "Marine Type. U.S.C.G. Type (....), Size (....)," in the individual Listings and in the Listing Mark.

Extinguishing system units are investigated for the protection of specific classes or types of fires or for specific hazards as indicated in the individual Listings.

Prospective users should first determine from Authorities Having Jurisdiction which type of extinguishers, extinguishing agents or extinguishing system units are acceptable for protection of the hazards. Extinguishers and extinguishing system units are intended to be installed, inspected, maintained and tested in accordance with the appropriate National Fire Protection Association standard(s).

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.

FIXED CONDENSED AEROSOL EXTINGUISHING SYSTEM UNITS (FWSA)

USE AND INSTALLATION

This category covers fixed condensed aerosol extinguishing system units, inclusive of aerosol-generating extinguishing system units and aerosol-generating automatic extinguisher units, intended for total flooding applications when installed, inspected, tested and maintained in accordance with ANSI/NFPA 2010, "Fixed Aerosol Fire Extinguishing Systems," and the Listee's design, installation, operation and maintenance instruction manual.

For total flooding applications, the hazard is surrounded by a fixed enclosure to enable the required aerosol extinguishing agent concentration to be achieved and maintained for the required hold time to effectively extinguish fire within the enclosure. The total flooding design application densities for surface-type Class A, B and C fires (as applicable) are specified in the Listee's design, installation, operation and maintenance instruction manual referenced in the individual Listings.

Fixed condensed aerosol extinguishing system units include condensed aerosol generators with mounting brackets; actuating mechanisms, and other accessory equipment (as applicable). Condensed aerosol generators are

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

Fixed Condensed Aerosol Extinguishing System Units (FWSA)—Continued

normally nonpressurized devices incorporating an aerosol-forming compound consisting of a mixture of oxidant(s) and combustible component(s) that, when pyrotechnically actuated, produces an aerosol extinguishing agent of gaseous matter and finely divided solid particles that flow through a cooling mechanism within the device prior to exiting through discharge port(s) and into the protected space.

Aerosol-generating extinguishing system units, when assembled into a system with one or more condensed aerosol generators, are designed for automatic and manual actuation and are intended for surface-type Class A, B and C fires.

Aerosol-generating automatic extinguisher units are self-contained units designed for automatic thermal actuation, do not have a manual means of actuation, are limited to a single protected enclosure, and are intended for Class B and C fires. Aerosol-generating automatic extinguisher units are also intended for surface-type Class A fires as indicated in the individual Listings.

For information regarding safeguards for personnel, see ANSI/NFPA 2010. Authorities Having Jurisdiction should be consulted before installation.

UNEVALUATED FACTORS

The potential effects of aerosol extinguishing agent discharge residue on sensitive equipment and other objects have not been investigated.

ADDITIONAL INFORMATION

For additional information, see Extinguishers and Extinguishing System Units (FWFZ) and Fire Protection Equipment (AAFP).

REQUIREMENTS

The basic requirements used to investigate products in this category are contained in UL Subject 2775, "Outline of Investigation for Fixed Condensed Aerosol Extinguishing System Units."

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 "Aerosol-generating Automatic Extinguisher Unit" or "Aerosol-generating Extinguishing System Unit."

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ATK CORP		EX15526
PO BOX 707, BRIGHAM CITY UT 84302		
Description	Part No.	
Aerosol-generating extinguishing system unit		
, Model OS-10, including:		
Quad Pack Assembly including 4	P6185908	
Condensed aerosol generator, AFCS-1		
Control Unit and Mounting stand		
Design, Installation, Operation and	PLN001364	
Maintenance Manual, dated 2010-10		
Owner's Manual, dated 2010-10-05	PLN001764	

For Class A surface burning and Class B and C category hazards; not for use in hazardous (classified) locations. Temperature range -17.8 to 54°C.

FIREAWAY L L C		EX15004
5852 BAKER RD, MINNETONKA MN 55345		
Description	Part No.	
Aerosol-generating extinguishing system unit		
Stat-X condensed aerosol generator,	15100	
Model 30 E		
Stat-X condensed aerosol generator,	15110	
Model 60 E		
Stat-X condensed aerosol generator,	15120	
Model 100 E		
Stat-X condensed aerosol generator,	15130	
Model 250 E		
Stat-X condensed aerosol generator,	15140	
Model 500 E		
Stat-X condensed aerosol generator,	15150	
Model 1000 E		
Stat-X condensed aerosol generator,	15160	
Model 1500 E		



Documents

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**EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS
(FWFZ)**
**Fixed Condensed Aerosol Extinguishing System Units
(FWSA)–Continued**

Description	Part No.	
Stat-X condensed aerosol generator, Model 2500 E		15170
Aero-K condensed aerosol generator, Model G 30		11700
Aero-K condensed aerosol generator, Model G 60		11705
Aero-K condensed aerosol generator, Model G 100		11740
Aero-K condensed aerosol generator, Model G 250		11710
Aero-K condensed aerosol generator, Model G 500		11690
Aero-K condensed aerosol generator, Model G 1000		11770
Aero-K condensed aerosol generator, Model G 1500		11800
Aero-K condensed aerosol generator, Model G 2500		11850
Mounting bracket, for Models G 30, G 60, 30 E and 60 E		18001
Mounting bracket, for Models G 100 and 100 E		18005
Mounting bracket, for Models G 250, G 500, 250 E and 500 E		18010
Mounting bracket, for Models G 1000, G 1500, G 2500, 1000 E, 1500 E and 2500 E		18015
Stat-X Design, Installation, Operation and Maintenance Manual, dated 2009-09		19000
Stat-X Owner's Manual, dated 2009-09		19001
Aero-K Design, Installation, Operation and Maintenance Manual, dated 2009-10		19002
Aero-K Owner's Manual, dated 2009-10		19003

For Class A surface burning and Class B and C category hazards; not for use in hazardous (classified) locations. Temperature range -40 to 54°C.

FIREPRO SYSTEMS LTD EX6960
6, KOURMADARIAS STREET & SPYROU ARAOUZOU TONIA
COURT NO. 2, 1ST FLOOR 3036 54080, LIMASSOL CYPRUS

Description	Part No.
Aerosol-generating extinguishing system unit	
FirePro condensed aerosol generator	FP-100S
FirePro condensed aerosol generator	FP-200S
FirePro condensed aerosol generator	FP-500S
FirePro condensed aerosol generator	FP-1200
FirePro condensed aerosol generator	FP-2000
FirePro condensed aerosol generator	FP-3000
FirePro condensed aerosol generator	FP-5700
Mounting bracket, 100, 200, 500 g	C1-2-5ABS/C1-2-SRBR
Mounting bracket, 2000, 3000, 1200 g	B122030BRKT
Mounting bracket, 5700 g	B57BRKT
Design, Installation, Operation and Maintenance Manual, Version 1.0, Revision 2, dated June 2011	

For Class A surface burning and Class B and C category hazards; not for use in hazardous (classified) locations. Temperature range -54 to +54°C.

**ANTIFREEZE SOLUTION EXTINGUISHERS
(FWTX)
GENERAL**

This category covers water fire extinguishers that are charged with anti-freeze solution, permitting operation at minimum temperatures less than 40°F and as low as -40°F as indicated in the individual Listings. They are intended for use in locations where low-temperature conditions make water-type extinguishers without antifreeze solution unsuitable.

These extinguishers are intended for use on Class A fires. They are not intended for use on Class B, C, D or K fires unless indicated.

These extinguishers are intended to use antifreeze charges specified or provided by the extinguisher manufacturer following the charging and maintenance directions on the extinguisher nameplate or recharging package.

RELATED PRODUCTS

Pump-tank extinguishers covered under Water Extinguishers, Pump Tanks (GNTT), charged with a proper solution of calcium chloride, are also suitable for low-temperature service.

ADDITIONAL INFORMATION

For additional information, see Extinguishers and Extinguishing System Units (FWFZ) and Fire Protection Equipment (AAFP).

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ) 15
Antifreeze Solution Extinguishers (FWTX)–Continued
REQUIREMENTS

The basic standards used to investigate products in this category are ANSI/UL 626, "Water Fire Extinguishers," ANSI/UL 711, "Rating and Fire Testing of Fire Extinguishers," and ANSI/NFPA 10, "Portable Fire Extinguishers."

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 "Hand Fire Extinguisher – Classification [classification letter(s) and number(s)]."

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AMEREX CORP EX2765
7595 GADSDEN HWY E PO BOX 81, TRUSSVILLE AL 35173
 2-1/2 gal capacity, Classification 2-A.

BADGER FIRE PROTECTION EX860
1016 CORPORATE PARK DR, MEBANE NC 27302
 2-1/2-gal capacity, classification 2-A.

WALTER KIDDE PORTABLE EQUIPMENT INC EX1156
1394 S 3RD ST, MEBANE NC 27302
 2-1/2 -gal capacity, loaded stream, classification 2-A.

**CARBON DIOXIDE EXTINGUISHERS (FXHV)
GENERAL**

This category covers carbon dioxide extinguishers, which are portable appliances intended for operation over a temperature range of -22°F to 120°F, unless otherwise noted in the individual Listings.

Hand-held portable extinguishers are provided with a self-closing shut-off nozzle or control valve and may also utilize a hose or horn as a means of directing the discharge. They are provided with a carrying handle for portability and a wall hook or bracket for mounting. Wheeled-type extinguishers are mounted on a carriage for portability and provided with a hose and horn to direct the discharge and shutoff nozzle at the end of the hose.

Carbon dioxide is electrically nonconductive and, in suitable proportions, is effective on Class B and C fires. Carbon dioxide used as an extinguishing agent displaces the air and depletes the available oxygen in the area of discharge. Operators and others in the area of extinguisher discharge should take precautions to avoid the effects, which may be caused by breathing the discharged gas and the gases liberated or produced by the fire, especially in unventilated places such as small rooms, closets or confined spaces.

The fire-extinguishing classifications are developed at normal ambient temperature of approximately 70°F. Extinguisher effectiveness may be reduced at lower temperatures.

These extinguishers are intended to be selected, installed, inspected, maintained and tested in accordance with the applicable requirements of ANSI/NFPA 10, "Portable Fire Extinguishers."

RELATED PRODUCTS

See Extinguishers, Carbon Dioxide, Portable, Marine (GOYZ).

ADDITIONAL INFORMATION

For additional information, see Extinguishers and Extinguishing System Units (FWFZ) and Fire Protection Equipment (AAFP).

REQUIREMENTS

The basic standards used to investigate products in this category are ANSI/UL 154, "Carbon-Dioxide Fire Extinguishers," and ANSI/UL 711, "Rating and Fire Testing of Fire Extinguishers."

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 "Carbon Dioxide Fire Extinguisher – Classification ____."

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EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS
(FWFZ)

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Carbon Dioxide Extinguishers (FXHV)—Continued

AMEREX CORP **EX2835**
7595 GADSDEN HWY E PO BOX 81, TRUSSVILLE AL 35173

Model	Nom Agent Capacity, lb	Min Use Temp, °F	Rating	Marine Type
322	5	-22	5-B:C	Yes
330	10	-22	10-B:C	Yes
331	15	-22	10-B:C	Yes
332	20	-22	10-B:C	Yes
333	50	-22	20-B:C	Yes
334	100	-22	20-B:C	Yes

ANSUL INC **EX2199**
1 STANTON ST, MARINETTE WI 54143

Model	Nom Agent Capacity, lb	Min Use Temp, °F	Rating	Marine Type
CD05A-1, CD05-1	5	-22	5-B:C	Yes
CD10A-1, CD10-1	10	-22	10-B:C	Yes
CD15A-1, CD15-1	15	-22	10-B:C	Yes
CD20A-1, CD20-1	20	-22	10-B:C	Yes
CO-50-D-1	50	-22	20-B:C	No
CO-100-D-1	100	-22	20-B:C	No

BADGER FIRE PROTECTION **EX1809**
1016 CORPORATE PARK DR, MEBANE NC 27302

Model	Nom Agent Capacity, lb	Min Use Temp, °F	Rating	Marine Type
B5V-1, B5V-1 MR	5	-22	5-B:C	Yes
B10V-1	10	-22	10-B:C	Yes
B15V-1	15	-22	10-B:C	Yes
B20V-1	20	-22	10-B:C	Yes
CD50-2	50	-22	20-B:C	No
CD100-2	100	-22	20-B:C	No

BUCKEYE FIRE EQUIPMENT CO **EX3146**
110 KINGS RD PO BOX 428, KINGS MOUNTAIN NC 28086

Model	Nom Agent Capacity, lb	Min Use Temp, °F	Rating	Marine Type
451	5	-22	5-B:C	Yes
456	10	-22	10-B:C	Yes
461	15	-22	10-B:C	Yes
466	20	-22	10-B:C	Yes
C-50-SE	50	-22	20-B:C	Yes
C-100-SE	100	-22	20-B:C	Yes

NATIONAL FIRE FIGHTING MFG FZ CO **EX15223**
PO BOX 17014 JEBEL ALI FREE ZONE, DUBAI UNITED ARAB EMIRATES

Model	Nominal Agent Capacity, lb	Min Use Temp, °F	Rating	Marine Type
N 05L C	5	-22	5-B:C	Yes
N 10L C	10	-22	10-B:C	Yes
N 15L C	15	-22	10-B:C	Yes
N 20L C	20	-22	10-B:C	Yes

POTTER-ROEMER **EX3697**
3100 S SUSAN ST, SANTA ANA CA 92704

Model	Nom Agent Capacity, lb	Min Use Temp, °F	Rating	Marine Type
3405	5	-22	5-B:C	Yes
3410	10	-22	10-B:C	Yes
3415	15	-22	10-B:C	Yes
3420	20	-22	10-B:C	Yes

PYRO CHEM **EX4917**
1 STANTON ST, MARINETTE WI 54143

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

Carbon Dioxide Extinguishers (FXHV)—Continued

Model	Nom Agent Capacity, lb	Min Use Temp, °F	Rating	Marine Type
PC CD05A-1	5	-22	5-B:C	Yes
PC CD10A-1	10	-22	10-B:C	Yes
PC CD15A-1	15	-22	10-B:C	Yes
PC CD20A-1	20	-22	10-B:C	Yes

STRIKE FIRST CORP **EX5449**
777 TAPSCOTT RD, SCARBOROUGH, ON M1X 1A2 CANADA

Model	Nom Agent Capacity, lb	Min Use Temp, °F	Rating	Marine Type
SF-5CO2	5	-22	5-B:C	No
SF-10CO2	10	-22	10-B:C	No
SF-15CO2	15	-22	10-B:C	No
SF-20CO2	20	-22	10-B:C	No

WALTER KIDDE PORTABLE EQUIPMENT INC **EX966**
1394 S 3RD ST, MEBANE NC 27302

Model	Nom Agent Capacity, lb	Min Use Temp, °F	Rating	Marine Type
PRO 5CDM-4	5	-22	5-B:C	Yes
B5V-1 MR	5	-22	5-B:C	Yes
PRO10CDM-4	10	-22	10-B:C	Yes
PRO15CDM-4	15	-22	10-B:C	Yes
PRO20CDM-4	20	-22	10-B:C	Yes
Pro CD50 CDM-2	50	-22	20-B:C	No
ProvCD100 CDM-2	100	-22	20-B:C	No

CARBON DIOXIDE EXTINGUISHING SYSTEM UNITS (FXVT)

Carbon Dioxide Extinguishing System Units are intended for use in Carbon Dioxide Extinguishing Systems, installed in accordance with the provisions of the Standards of the National Fire Protection Association for Carbon Dioxide Extinguishing Systems, NFPA 12, with additional limitations as specified in the individual listings. When so installed they may form manual or combined manual and automatic systems, with or without remote operation. Such systems in their simplest form consists of one or more storage containers with discharge valves, control heads, piping, and discharge nozzles. The systems thus formed may use high pressure (approximately 850 psia storage) or low pressure (approximately 300 psia storage) carbon dioxide. The high pressure storage containers are either DOT-3A or -3AA shipping containers (cylinders) while the low pressure storage containers are refrigerated tanks constructed in compliance with ASME Unfired Pressure Vessel Code Requirements.

Carbon dioxide is low in toxicity (UL Group 5). However, at CO₂ concentrations above 9%, humans will quickly lose consciousness. At concentrations of approximately 20%, humans will die in about 20 to 30 minutes unless they are removed to a source of fresh air.

Inspection authorities having jurisdiction should be consulted before installation is made.

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Carbon Dioxide Extinguishing System Units, General Use (FYJR)
USE AND INSTALLATION

This category covers devices that may be used in all types of carbon dioxide extinguishing systems, such as cylinders, cylinder valves, control heads, selector valves, pneumatic and electric detectors, etc.

Carbon dioxide extinguishing systems are intended to be designed, installed and maintained in accordance with ANSI/NFPA 12, "Carbon Dioxide Extinguishing Systems."

The individual Listings contain information regarding the equivalent length of system units that affect the flow of carbon dioxide in pipelines. This information may be used in computing system flow rates according to the methods described in ANSI/NFPA 12.

RELATED PRODUCTS

Grooved couplings that are suitable for use in accordance with ANSI/NFPA 12 when installed with (1) grooved fittings as described in Listings

Documents

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**EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS
(FWFZ)**
**Carbon Dioxide Extinguishing System Units, General Use
(FYJR)—Continued**

Grooved and Plain End (VIZA), and/or (2) cut or rolled grooved Schedule 40 steel pipe complying with the specifications contained in ANSI/NFPA 12, and (3) low-pressure (300 psig) carbon dioxide extinguishing system units are covered under Fittings, Rubber Gasketed (VIZM).

Grooved fittings that are suitable for use in accordance with ANSI/NFPA 12 when installed with (1) grooved couplings as described in VIZM, (2) cut or rolled grooved Schedule 40 steel pipe complying with the specifications contained in ANSI/NFPA 12, and (3) low-pressure (300 psig) carbon dioxide extinguishing system units are covered under VIZA.

ADDITIONAL INFORMATION

For additional information, see Carbon Dioxide Extinguishing System Units (FXVT), Extinguishers and Extinguishing System Units (FWFZ) and Fire Protection Equipment (AAPP).

REQUIREMENTS

The basic standard used to investigate products in this category is ANSI/NFPA 12, "Carbon Dioxide Extinguishing Systems."

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 "Carbon Dioxide Extinguishing System" (or "Carbon Dioxide Ext System").

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ANSUL INC
EX2968
1 STANTON ST, MARINETTE WI 54143

High-pressure system units. Carbon Dioxide extinguishing system units in the 25, 35, 50, 75, 100 and 120 lb capacities. The operating temperature limits for these units are 0 F to 130 F. These units have an operating pressure of 850 psig at 70 F.

The following components are covered in this Listing:

Cylinder / Valve assemblies:

Valve Assembly Part No.

Size Lbs	Max	AP-8	VFN	CV-90	CV-98
25	—	—	—	79814, 79815	—
35	—	—	—	79816, 79817	426242, 426243
50	70760, 76921	46240, 76924	41239	79818, 79819	426244, 426245
75	70761, 76922	46242, 76925	41244	79820, 79821	426246, 426247
100	70762, 70434, 76923	46244, 69989, 76926	41242	79822, 79823	426248, 426249, 438810, 426612, 426613
120	—	—	—	—	428421, 428422

Note: First part No. correlates to enamel cylinder paint system. Second part No. correlates to epoxy cylinder paint system.

*Alternate valve assembly on cylinder with enamel paint.

Size & Part No. Globe Type	Selector Valves		Equivalent Length Ft	
	Nom Pipe Size In.	Schedule 80	Schedule 40	
1-1/2 in. - No. 1481	1/2	13	25	
1-3/4 in. - No. 1479	3/4	17	29	
1-3/4 in. - No. 1325	1	29	—	
1-1/4 in. - No. 1320	1-1/4	40	—	
1-1/2 in. - No. 1259	1-1/2	59	—	
Ball Type				
1/2 in. - No. 26001	1/2	1	1	
3/4 in. - No. 25882	3/4	1	1	
1-3/4 in. - No. 26002	1	1	—	
1-1/4 in. - No. 25856	1-1/4	2	—	
1-1/2 in. - No. 25881	1-1/2	2	—	
Pressure-Operated				
1-3/4 in. - No. 1582	1/2	1.2	2.5	
1-3/4 in. - No. 1582	3/4	6	10	
1-3/4 in. - No. 1582	1	21	—	
1-1/2 in. - No. 1586	1-1/2	61	—	
1-1/2 in. - No. 1586	1-1/4	27	—	
2-3/4 in. - Nos. 1589, 1630	2	80	—	

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ) 17
**Carbon Dioxide Extinguishing System Units, General Use
(FYJR)—Continued**

Size & Part No. Globe Type	Selector Valves Nom Pipe Size In.	Equivalent Length Ft	
		Schedule 80	Schedule 40
2-1/2 in. - Nos. 1601, 1639	2-1/2	109	—
3-3/4 in. - Nos. 1610, 1688	3	156	—
3-3/4 in. - No. 99920	3	72	95
3-3/4 in. - No. 99920	2-1/2	25	33
3-3/4 in. - No. 99920	2	10	14
4-3/4 in. - No. 99755	4	111	142

Size & Part No.	Cylinder Valve Assembly Nom Pipe Size In.	Equivalent Length Ft	
		Schedule 80	Schedule 40
No. VFN with No. AP-6 Head and either No. 62470 or No. 62480 flexible connector	1/2	129	254
No. AP-8 with No. 84926 or 84915 flexible connector	1/2	26	52
3/4 in. valve-No. 70333 with flexible connector 68714	3/4	42	70
CV-90 Valve	1/2	11	20
CV-98 Valve	1/2	11	20

For AP-6
Discharge Control Head

	Part No.
Lever operator	40706
Remote pressure-level operator	41411
Remote pressure operator	41420
Enclosed cable operator	41494

For AP-8

Lever release	42484
Enclosed cable operator	42743
Pneumatic-cable operator	42530
Electrical operator, lever or remote	42509
For 3/4 in. valve	70333
Back pressure operator	68713
Stackable back pressure operator	70326
Cable operator	32089
Pneumatic operator	30734
Pneumatic operator with manual overdrive	31301

For CV98

HF Electric Actuator	73327
HF Booster	429847

Cable Release Equipment

Pulleys, 45771, 45510, 42679; junction box 42773 (2 cable), 42784 (3 cable), junction tube 40454 (2 cable), 40454 (3 cable); cable equalizer 42791, 43150; pull box, latched door types 45062, 45078, flush type 45539, break glass type 41527, Type B 42329.

Pneumatic Release Equipment

Reflector 60421, release 60605, 60607, mercury checks 87915, transfer valve 87950, pressurized release QBA-5.

Size & Part No. Time Delay Valve	Misc Equipment Nom Pipe Size In.	Equivalent Length Ft	
		Schedule 80	Schedule 40
1/2 in. - No. 1772	1/2	7	13.5
1/2 in. - No. 1772	3/4	33	57
1/2 in. - No. 32910	1/2	9	18
3/4 in. - No. 32910	3/4	47	80
1/2 in. - No. 32911	1/2	9	18
3/4 in. - No. 32911	3/4	47	80
1/2 in. - No. 32912	1/2	9	18
3/4 in. - No. 32912	3/4	47	80
10 sec. - No. 54170	1/2	8	14
10 sec. - No. 54170	3/4	32	55
30 sec. - No. 54169	1/2	8	14
30 sec. - No. 54169	3/4	32	55
60 sec. - No. 54168	1/2	8	14
60 sec. - No. 54168	3/4	32	55

The valves corresponding to Part Nos. 32910, 32911, 32912 provide discharge delay periods of 15 sec, 30 sec, 60 sec respectively. The delay period time for Part No. 1772 is stamped on the nameplate of each valve.


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**EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS
(FWFZ)**

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**Carbon Dioxide Extinguishing System Units, General Use
(FYJR)—Continued**
Equipment for High Pressure Systems

Size & Part No.	Check Valve	Equivalent Length Ft	
	Nom Pipe Size In.	Schedule 80	Schedule 40
1 1/2 in. - No. 1464	1/2	12	24
1 3/4 in. - No. 1458	3/4	24	42
1 1/4 in. - No. 1497	1	28	—
1 1/4 in. - No. 1499	1 1/4	43	—
1 1/2 in. - No. 1500	1 1/2	51	—
2 1/4 in. - No. 1382	2	48	—
2 1/2 in. - No. 1377	2 1/2	60	—
3 1/4 in. - No. 1441	3	154	—

Lockout Valves

Part No.	Lock Out Valve	Equivalent Length Ft	
	Nom Pipe Size In.	Schedule 80	Schedule 40
428153	1/2	1	1
428154	3/4	2	3
428155	1	2	4
428156	1-1/4	8	12
428157	1-1/2	6	9
428158	2	12	15
437216	3	12	—
427217	4	16	—

Miscellaneous Equipment

Device	Part or Model No.
Header Vent Plug	40309
Header Vent Plug	436085
Pressure Relief Valve	15677
1/4 in. bleeder	2747P
Pressure-operated siren	POS-2A, 437616
Door window releases	1-B, PR-2
Stackable actuator	428566
Pneumatic transducer, TR-1	87750

SELECTOR VALVES

Size In.	Part No.
1/2	57428
3/4	57429
1	427185, 57430
1-1/4	57431
1-1/2	57432
2	427150, 427852
2, 2-1/2, 3	57433
4	57445

Electrical Components
For use with high pressure systems.

Device	Part or Model No.
Manual box	BGS-1
Circuit test unit	3
Pressure switches	2, 3, 54186
Electric discharge plug (explosive)	88520
Circuit monitor	Type CMI

CHECK VALVES —

Size In.	Type	Part No.
1/4	Threaded check valve	25627
1/2	Threaded check valve	40860
3/4	Threaded check valve	40852
1	Threaded check valve	41470
1-1/4	Threaded check valve	41549
1-1/2	Threaded check valve	41463
2	Threaded check valve	40649
2	Flanged check valve	40794
2-1/2	Threaded check valve	40656
2-1/2	Flanged check valve	46095

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)
**Carbon Dioxide Extinguishing System Units, General Use
(FYJR)—Continued**

Size In.	Type	Part No.
3	Threaded check valve	40665
3	Flanged check valve	40672

GEAR OPERATED BALL VALVE ASSEMBLIES:

	Part No.
3 In. Full Cort Ball Valve w / 8 In. Handwheel	65129
4 In. Full Port Ball Valve w / 12 In. Handwheel	65130
6 In. Full Port Ball Valve w / 24 In. Handwheel	65131

**GEAR OPERATED BUTTERFLY VALVE ASSEMBLIES:
WAFER:**

	Part No.
3 In. B. F. Valve w / 8 In. Handwheel and MV31 / PF / SL040 Operator	65132
4 In. B. F. Valve w / 8 In. Handwheel and MV31 / PF / SL040 Operator	65133
6 In. B. F. Valve w / 8 In. Handwheel and MV31 / PF / SL040 Operator	65134
8 In. B. F. Valve w / 8 In. Handwheel and MV31 / PF / SL040 Operator	65135

FLANGE:

	Part No.
3 In. B. F. Valve w / 8 In. Handwheel and MV / PF / SL040 Operator	65153
4 In. B. F. Valve w / 8 In. Handwheel and MV / PF / SL040 Operator	65154
6 In. B. F. Valve w / 8 In. Handwheel and MV / PF / SL040 Operator	65155
8 In. B. F. Valve w / 24 In. Handwheel and MV / PF / SL040 Operator	65156

**PRESSURE OPERATED BUTTERFLY VALVE ASSEMBLIES:
WAFER STYLE:**

	Part No.
3" B.F.Valve w / M12SR Operator w / MV 31 Override	65139
4" B.F.Valve w / M23SR Operator w / MV 31 Override	65140
6" B.F.Valve w / M46SR Operator w / MV 31 Override	65151
8" B.F.Valve w / M144SR Operator w / MB 64 Override	65152

FLANGE STYLE:

	Part No.
3" B.F.Valve w / M12SR Operator w / MV 31 Override	65157
4" B.F.Valve w / M23SR Operator w / MV 31 Override	65158
6" B.F.Valve w / M46SR Operator w / MV 31 Override	65159
8" B.F.Valve w / M144SR Operator w / MB 64 Override	65160

PRESSURE OPERATED BALL VALVE ASSEMBLIES:

	Part No.
1/2" Ball Valve(416910)w / M03SR Operator(65115)	65143
3/4 In. Ball Valve (416911) w / M03SR Operator (65115)	65144
1 In. Ball Valve (416912) w / M03SR Operator (65115)	65145
1-1/4 In. Ball Valve (416913) w / M06SR Operator (65117)	65146
1-1/2 In. Ball Valve (416914) w / M06SR Operator (65117)	65147
2 In. Ball Valve (416915) w / M12SR Operator (65118)	65148
3 In. Ball Valve (416916) w / M36SR Operator (65119) and MV 31 Override (417633)	65149


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**EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS
(FWFZ)**
**Carbon Dioxide Extinguishing System Units, General Use
(FYJR)—Continued**

4 In. Ball Valve (416917) w / M144SR Operator (65121) and MB 64 Override (417634)	Part No. 65150
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BALL VALVE W/LOCKING LEVER OPERATOR

1/4 In. Ball Valve w / LD53 Locking Lever	Part No. 416909
1/2 In. Ball Valve w / LD53 Locking Lever	416910
3/4 In. Ball Valve w / LD53 Locking Lever	416911
1 In. Ball Valve w / LD54 Locking Lever	416912
1-1/4 In. Ball Valve w / LD54 Locking Lever	416913
1-1/2 In. Ball Valve w / LD55 Locking Lever	416914
2 In. Ball Valve w / LD55 Locking Lever	416915

ELECTRO PNEUMATIC OPERATED BALL VALVE ASSEMBLIES:

1/2 In. Ball Valve w / M03SR Operator (65143) w / Solenoid	Part No. 418443
3/4 In. Ball Valve w / M03SR Operator (65144) w / Solenoid	418444
1 In. Ball Valve w / M03SR Operator (65145) w / Solenoid	418445
1-1/4 In. Ball Valve w / M06SR Operator (65146) w / Solenoid	418446
1-1/2 In. Ball Valve w / M06SR Operator (65147) w / Solenoid	418447
2 In. Ball Valve w / M12SR Operator (65148) w / Solenoid	418448
3 In. Ball Valve w / M36SR Operator w / Solenoid	418775
3 In. Ball Valve w / M36SR Operator and MV31 Override (65149) w / Solenoid	418449
4 In. Ball Valve w / M144SR Operator w / Solenoid	418776
4 In. Ball Valve w / M144SR Operator and MB64 Override (65150) w / Solenoid	418450

ELECTRO PNEUMATIC OPEPRATED BUTTERFLY VALVE ASSEMBLIES:
WAFER STYLE:

3 In. B. F. Valve w / M12SR Operator w / Solenoid	418779
3 In. B. F. Valve w / M12SR Operator w / MV 31 Override (65139) w / Solenoid	418451
4 In. B. F. Valve w / M23SR Operator w / Solenoid	418780
4 In. B. F. Valve w / M23SR Operator w / MV 31 Override (65140) w / Solenoid	418452
6 In. B. F. Valve w / M46SR Operator w / Solenoid	418781
6 In. B. F. Valve w / M46SR Operator w / MV 31 Override (65151) w / Solenoid	418453
8 In. B. F. Valve w / M144SR Operator w / Solenoid	418782
8 In. B. F. Valve w / M144SR Operator w / MB 64 Override (65152) w / Solenoid	418454

FLANGE STYLE:

3 In. B. F. Valve w / M12SR Operator w / Solenoid	418787
3 In. B. F. Valve w / M12SR Operator w / MV 31 Override (65157) w / Solenoid	418455
4 In. B. F. Valve w / M23SR Operator w / Solenoid	418788
4 In. B. F. Valve w / M23SR Operator w / MV 31 Override (65158) w / Solenoid	418456
6 In. B. F. Valve w / M46SR Operator w / Solenoid	418789
6 In. B. F. Valve w / M46SR Operator w / MV 31 Override (65159) w / Solenoid	418457
8 In. B. F. Valve w / M144SR Operator w / Solenoid	418790
8 In. B. F. Valve w / M144SR Operator w / MB 64 Override (65160) w / Solenoid	418458

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ) 19
**Carbon Dioxide Extinguishing System Units, General Use
(FYJR)—Continued**

MISCELLANEOUS	Ansul Part No.
Vent Valve, Replacement part for CV-98 valve	437612
Solenoid Valve-Honeywell Listed (MH15507)	
Skinner Model 73317BN2PN00	
Class F 10 watt ordinary location	418762
Class F 10 watt hazardous location	418763
PRESSURE SWITCH —	
United Electric Controls Listed (549A)	
Type H100 with or without manual reset	418579
Accessories	
Odorizing Unit-Steel .750 – 14" NPT Threading	42278
Ampoule 20 CC Capacity	42284
Nameplate-Odorizer	42280
CO2 Operated Siren-Painted Brass	46320
Discharge Indicator	40765
Pressure Operated Trip-Brass Body	5156
Pneumatic Switch-Watertight Cadmium Plated Iron Body	46250
Pneumatic Switch-Three Pole Cast Bronze Body	42344
3/4 In. Safety Relief Valve Brass Body, Stainless Trim, Buna-N seat 450 psig Mfg by Anderson Greenwood	417506
p / n 63MB68-5	
3/4 In. Pressure Operated Stop / Isolation Valve Brass Body	41702
Bleeder Valve Control Assembly	418798
Master Valve Emergency Override Assembly	418777
Filter 1/4 In.	418760
Filter 1/2 In.	418761
Selector Valve Emergency Override Assembly	418778
Shuttle Valve	417414
1/4 In. 3 Way Ball Valve	418765
1/2 In. 3 Way Ball Valve	418766
Regulator	418764

CHEMETRON FIRE SYSTEMS
EX1368
3RD FL 4801 SOUTHWICK DR, MATTESON IL 60443
Low-pressure system units

All storage tanks are manufactured and marked in accordance with ASME specifications having a rated working pressure of 350 psi.

Models 1-048-1062 through -1065 or -1074 through -1077 1-1/4 ton -1066 through -1069 or -1078 through -1081 2 ton, -1070 through -1073 or -1082 through -1085 -2/3/4 ton capacity, 42 in. ID storage units utilizing refrigerants R404A or R507 .

Models 1-048-1066 through -1097 4 ton, -1098 through -1109 6 ton, -1110 through -1120 or -1140 through -1151 8 ton, -1122 through -1133 10 ton capacity, 54 in. ID storage units utilizing refrigerants R404A or R507 .

Models 1-048-1211 through -1220 or -1340 through -1349 13 ton, -1221 through -1230 or -1350 through -1359 17 ton, -1231 through -1240 or -1360 through -1369 24 ton, -1241 through -1250 or -1370 through -1379 31 ton, -1251 through -1260 or -1380 through -1389 45 ton capacity, 78 in. ID storage units utilizing refrigerants R404A or R507 .

Storage Tanks

Metal-housed and cork covered. All tanks provided with Listed refrigeration unit and controls and safety vent assembly. With or without integral transfer pump, Listed explosion-proof electrical equipment, cylinder filling connections, dual refrigeration. Models 1-048-0176, 1-048-0062, 3/8 and 1 ton units, respectively; Models 1-048-0063 through -0068, -0097 through -0102, -0126 through -0131, -0132 through -0137, -0138 through -0143, -0169, -0170, -0177, -0178, with suffix numbers related to capacities from 2 through 52 tons.

Metal-housed with foamed polyurethane insulation. Models 1-048-0192 or -0484 1-1/4 ton, 1-048-0193 or -0485 2 ton, 1-048-0194 or -0486 2-3/4 ton, 1-048-0235 4 ton, 1-048-0236 6 ton, 1-048-0277 8 ton capacities, respectively.

Fiberglass housing with foamed polyurethane insulation. Models 1-048-0009, -0018, -0038, -0052, -0907 through -0910 with 17, 24, 31 and 13 ton capacities, respectively.

Automatic mechanical timer, 1-01-00-3-8
Discharge timer valve, C41752 .

Timers, Timer Valve Documents

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EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

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Carbon Dioxide Extinguishing System Units, General Use (FYJR)—Continued

Selector valves.

Size & Stock No.	Nom Pipe	Equivalent Length Ft	
	Size In.	Schedule 80	Schedule 40
1-1/2 in. - 1-061-0371	1-3/4	8	13
1-1/2 in. - 1-061-0371	1	29	47
1-1/2 in. - 1-061-0663-6	1	24.5	40
1-1/2 in. - 1-061-0369	1-1/2	49	72
1-1/2 in. - 1-061-0312	1-1/2	48	71
2-1/2 in. - 1-061-0370	2	48	67
3-1/2 in. - 1-061-0733	2-1/2	23	31
3-1/2 in. - 1-061-0733	3	73	99
4-1/2 in. - 1-061-0734	3-1/2	44	61
4-1/2 in. - 1-061-0734	4	92	120
6-1/2 in. - 1-061-0740	5	55	70
6-1/2 in. - 1-061-0740	6	142	185

Tank shut-off valves.

3 in. - 8-061-0317, 1-061-0989,0998,0994	3	23	30
4 in. - 8-061-0318 1-061-0990,0999,0995	4	24	31
6 in. - 8-061-0319 1-061-0991,1000,0996	6	37	47
8 in. - 8-061-0320 1-061-0992,0997	8	50	62

Miscellaneous Equipment

Manual Pilot Valve Station	Stock No.
Emergency manual release	1-010-0693
Flush	1-010-0145
Supervisory pressure switches	70170177, -178
Surface	1-010-0162-6
Three-way pressure operated valve	1-061-0668
Three-way pilot valves	1-061-0794, -0801, -0804
Three-way solenoid valve	B46621
Manual release station	1-010-0968

Electrical Components — For Use with Low Pressure Systems Push-Button Stations

Part Name	Model No.
First extended, surface	24308
First extended, flush	24338
Second extended, surface	24306
Second extended, flush	24344
Spurt, surface	24304
Spurt, flush	24340
Control unit system, surface	24337
Control unit system, flush	24346

Pilot Control Valves

Manual Pilot Valve Station	Stock No.
Electro-Manual Pilot Valve Cabinet	D1-010-420 through -0439, D1-061-0802 through -0812 21443, 21965
Electrical	

Lever Operated Valves

Size	Stock No.
	With Limit Switch
3/4 in.	1-061-0087
1 in.	1-061-0072
1-1/4 in.	1-061-0372
1-1/2 in.	1-061-0267
2 in.	1-061-0079

Use equivalent length for gate valve of appropriate size.
The valves above have weather-resistant limit switches.

Hand-Wheel Operated Valves

Size	Model No.
1 in.	1-061-0121, 8-061-0083
1-1/4 in.	1-061-0075, 8-061-0084
1-1/2 in.	8-061-0021
2 in.	8-061-0022
3 in.	8-061-0024
4 in.	8-061-0025
6 in.	8-061-0026
Gate Valves	
1-1/2 in.	1-061-0078

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

Carbon Dioxide Extinguishing System Units, General Use (FYJR)—Continued

Size	Model No.
2 in.	1-061-0080
3	1-061-0082
4	1-061-0083
6	1-061-0085

Note: Use equivalent length for gate valve of appropriate size.

Ball valves.

1/4 in.	1-061-0708
1/2	1-061-0319
3/4	1-061-0320
1	1-061-0709
1-1/4	1-061-0710
1-1/2	1-061-0711
2	1-061-0712
1/4 in.	1-061-1104
1/2	1-061-1100
3/4	1-061-1101
1	1-061-1099
1-1/4	1-061-1102
1-1/2	1-061-1098
2	1-061-1103
1/4 in.	1-061-1106
1/2	1-061-1107
3/4	1-061-1108
1	1-061-1109
1-1/4	1-061-1110
1-1/2	1-061-1111
2	1-061-1112
1/4 in.	1-061-1113
1/2	1-061-1114
3/4	1-061-1115
1	1-061-1116
1-1/4	1-061-1117
1-1/2	1-061-1118
2	1-061-1119

Butterfly valves

3 in.	1-061-0989
4 in.	1-061-0990
6 in.	1-061-0991

High-pressure system units.

Cylinder Valve Assemblies

For use with 50-, 75- or 100-lb. cylinders, classed DOT-3A, -3AA, -1800 or higher.

	Nom Pipe Size In.	Equivalent Length Ft Schedule 80	Schedule 40
Includes FC34937 valve, No. 571194 flex-ible connector and one of the following discharge heads: FB34922, -34990.	1/2	57	111
Includes FC34937 valve, No. 526263 flex-ible connector and one of the following discharge heads: FB34922, -34990.	1/2	49	95
Includes C50401 valve, No. 526263 flex-ible connector and one of the following discharge heads: C50286 or B50438.	1/2	13	30

Size & Stock No.	Nom Pipe Size In.	Equivalent Length Ft Schedule 80	Schedule 40
1-1/2 in. - FD34039	3/4	8	13
1-1/2 in. - FD34039	1	29	—
1-1/2 in. - FD23907	1-1/2	49	—
2-1/2 in. - FD23909	2	48	—
3-1/2 in. - D1-61-0733	3	73	—
4-1/2 in. - D1-61-0734	4	92	—

Release Equipment

Pilot Oper Valve	Model or Part No.
Delayed discharge	FB34930
Immediate discharge	FB34931
Control Cabinets	



Documents

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EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS
(FWFZ)Carbon Dioxide Extinguishing System Units, General Use
(FYJR)—Continued

Pilot Oper Valve	Model or Part No.
Multiple hazard	D46070, D46070-1
Manual release valve station	34500-B, 41546
Remote manual release station	B41874
Miscellaneous Equipment	
Pressure release - 1/2 in.	FA21915
Pressure release - 1 in.	FA21932
Safety relief, frangible disc type	A41597
Connection kit	A41892, A41893

Electrical Components - For Use With High Pressure Systems
Push-Button Stations

Pilot Oper Valve	Model or Part No.
Control unit system, surface	24337-1, -2
Control unit system, flush	24346-1, -2
System Units for High or Low Pressure Systems	
Control and Release Equipment	
Manual-pilot valve stations, surface	1-010-0153
Manual-pilot valve stations, flush	1-010-143
PredischARGE timer valve	C41753
Discharge delay valve	41793
Pilot control valve	C45982
Three-way pilot valve	B41783
Three-way pilot valve, pressure operated	C46316
Shuttle valve	41400
Switching valve	41395
Manual-pilot valve timer station, surface	32399
Manual-pilot valve timer station, flush	24748
Manual-pilot valve	161708
Door release	FS-41172
Pressure-operated releases	FA-21915, -21932
Pressure-operated pilot control valve	FD-41220
Automatic mechanical discharge timer	C42129
Automatic discharge delay timer	C41588
Pneumatic release (rate of rise)	C41582
Manual release valve station, push button operated	34500-B, 41546

Size & Part No.	Check Valve Nom Pipe Size In.	Equivalent Length Ft Schedule 80	Schedule 40
1/2 in. - C04BG02P-8	1/2	5	9
3/4 in. - C04BG02P-12	3/4	10	18
1-3/4 in. - C04BG02P-16	1	10	—
1-1/4 in. - C04BG02P-20	1-1/4	27	—
1-1/2 in. - C04BG02P-24	1-1/2	31	—
2-1/2 in. - C04BG02P-32	2	83	—
(Check valves with suffix letters FF, FM, MF, or MM)			
B47778-1	1/2	—	11
B47778-2	3/4	—	28
161700	2	29	—
161701	2-1/2	33	—
161702	3	37	—

Size & Stock No.	Nom Pipe Size In.	Equivalent Length Ft Schedule 80	Schedule 40
1/2 in. - B45695-1, B45696-1	1/2	6.5	13
3/4 in. - B45695-2, B45696-2	3/4	14.5	25

Electrical Components - For Use With High or Low Pressure System
Units

Push Button Station	Model No.
"On-Off", surface	24302
"On-Off", flush	24342
Momentary contacts, surface	24337-1, -2
Momentary contacts, flush	24346-1, -2
Pressure-operated switch	41644
Electrically operated solenoid valves:	
115 v, 25 cy, ac	A45927
24 v, dc or 115 v, 60 cy, ac	A7-061-0005
120 v, dc	A42444
250 v, dc	A45928
120 v, dc	A-7-061-0028
120 v, 50 Hz, ac	A-7-061-0015
120 v, 60 Hz, ac,	A-7-061-0006
24 v, dc	
120 v, 50/60 Hz	1-061-0157, 7-061-0421

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ) 21

Carbon Dioxide Extinguishing System Units, General Use
(FYJR)—Continued

Pressure Switches

Hazardous locations, Class I, Groups C and D: Class II, Groups E, F and G.

Part No. C42059 rated four pole, 30 amp, 250 v; Part No. C42068 rated two pole, 30 amp, 250 v.

Part No.	Blocking Valve Nom Pipe Size In.	Equivalent Length Ft Schedule 40	Schedule 80
161319	1/2	11	5
161320	3/4	16	9
161709	1	13	8
161710	1-1/4	21	14
161711	1-1/2	13	9
161712	2	20	16

Low-pressure system units.

Storage Tanks

All storage units provided with Listed refrigeration unit, controls, disconnect switch and safety vent assembly.

Metal-housed with rigid isocyanurate cellular foam and pre-finished aluminum skin. Models 1-001-0001, 1-002-0001, 1-002-0300, 1-003-0001, 1-003-0300, 1-004-0001, 1-004-0300, 1-005-0001, 1-005-0300, 1-006-0001, 1-006-0300, 1-007-0001, 1-008-0001, 1-009-0001; 3/4, 1-1/4, 1-1/4, 2, 2, 2-3/4, 2-3/4, 3-3/4, 4, 6, 6, 8, 10, 12 ton capacities respectively.

Prefinished aluminum skin, rigid isocyanurate cellular foam with metal shrouding over refrigeration unit and controls. Models 1-009-0002, -0003, -0004, -0005, -0007, -0008, -0009, -0010, -0011, -0012, -0013, -0014; 14, 18, 22, 26, 30, 34, 38, 42, 46, 50, 54, 58, 60 ton capacities respectively.

Pilot Equipment

Master Pilot Cabinet (Surface Mounted)

V	Part No.
120 v, ac - 60 Hz	7-001-0001
24 v, dc	7-001-0002

Selector Pilot Cabinet (Surface Mounted)

120 v, ac - 60 Hz	7-001-0100
24 v, dc	7-001-0101

Master Pilot Cabinet (Flush Mounted)

120 v, ac - 60 Hz	7-001-0006
24 v, dc	7-001-0007

Selector Pilot Cabinet (Flush Mounted)

120 v, ac - 60 Hz	7-001-0105
24 v, dc	7-001-0106

Hosereel Master Pilot Cabinet (Surface Mounted)

120 v, ac - 60 Hz	7-001-0011
24 v, dc	7-001-0012

Hosereel Selector Pilot Cabinet (Surface Mounted)

120 v, ac - 60 Hz	7-001-0110
24 v, dc	7-001-0111

3-Way Solenoid Valves

120 v, ac - 60 Hz	5-050-0100
24 v, dc	5-050-0101

Electrical Components - For Use With Low Pressure Systems

Part Name	Part No.
Push-button station;	
momentary contact,	
single light, 120 v, ac, dc	4-003-0001
250 v, dc	4-003-0010
24 v, dc	4-003-0002
Miscellaneous Equipment	
1/4 in. Pressure regulator	1-011-0001, 1-011-0002
1/2 in. Pressure regulator	1-011-0007, 1-011-0008
1/2 in. Backflow check valve	1-023-0301
1 in. Check valve	1-023-0303
1/2 in. Relief valve 350 PSI	1-023-0001
1/2 in. Relief valve 250 PSI	1-023-0002
1/2 in. Relief valve 275 PSI	1-023-0003
1/2 in. Relief valve 375 PSI	1-023-0004
1/2 in. Relief valve 450 PSI	1-023-0005

Manual Shut-Off Valves

Model No.	Nom Pipe Size In.	Equivalent Length Ft Schedule 80	Schedule 40
1-1/2 in. - 1-020-0001, -0002	1-1/2	13	19
2 in. - 1-020-0003, -0004	2	35	49
3 in. - 1-020-0005, -0006	3	56	75
4 in. - 1-020-0007, -0008	4	58	103
6 in. - 1-020-0009, -0010	6	123	160



Documents

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EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

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Carbon Dioxide Extinguishing System Units, General Use (FYJR)—Continued

Model No.	Nom Pipe Size In.	Equivalent Length Ft Schedule 80	Schedule 40
8 in. - 1-020-0011, -0012	8	216	274
Master Valves			
1/2 in. - 1-021-0001, -0002, -0003	1/2	6	12
3/4 in. - 1-021-0004, -0005, -0006	3/4	12	20
1 in. - 1-021-0007, -0008, -0009	1	7	12
1-1/4 in. - 1-021-0010, -0011, -0012	1-1/4	15	23
1-1/2 in. - 1-021-0013, -0014, -0015	1-1/2	13	19
2 in. - 1-021-0016, -0017, -0018	2	35	49
3 in. - 1-021-0019, -0020	3	56	75
4 in. - 1-021-0021, -0022	4	78	102
6 in. - 1-021-0023, -0024	6	123	160
8 in. - 1-021-0024, -0025	8	216	274
Selector Valves			
1/2 in. - 1-022-0001, -0002, -0003	1/2	6	12
3/4 in. - 1-022-0004, -0005, -0006	3/4	12	20
1 in. - 1-022-0007, -0008, -0009	1	7	12
1-1/4 in. - 1-022-0010, -0011, -0012	1-1/4	15	23
1-1/2 in. - 1-022-0013, -0014, -0015	1-1/2	13	19
2 in. - 1-022-0016, -0017, -0018	2	35	49
3 in. - 1-022-0019, -0020	3	56	75
4 in. - 1-022-0021, -0022	4	78	102
6 in. - 1-022-0023, -0024	6	123	160
8 in. - 1-022-0025, -0026	8	216	274

FIKE CORP

EX4447

704 S 10TH ST PO BOX 610, BLUE SPRINGS MO 64015

High-pressure system units.

Cylinder Valve Assemblies with Siphon Tube

Devices	Part No.	Nom Pipe Size, In.	Equivalent Length, Ft Schedule 40
Master Valve	C85-010	1/2	22.9
Valve w/ Discharge Bend	C70-226	1/2	25.4

Miscellaneous Equipment

Device	Part No.
Solenoid Actuator Assembly, 12v	C85-113
Solenoid Valve, 12v	C02-1254
Ball Valve, Manual Actuator	C02-1292
Manual Actuator Assembly	C85-119
Pressure Switch Assembly	C70-202
Discharge Bend Sub-Assembly	C02-1059

FIREBUS SYSTEMS INC

EX15938

12818 CENTURY DR, STAFFORD TX 77477

High-pressure system units. Carbon Dioxide extinguishing system units in the 100 lb capacity. The operating temperature limits for these units are 0 F to 130 F. These units have an operating pressure of 850 psig at 70 F.

The following components are covered in this Listing:

Size & Part No.	Selector Valves	Equivalent Length Ft
Globe Type	Nom Pipe Size In.	Schedule 80 Schedule 40
P/N 9010-FRP-4100	1/2	N/A 1.42
P/N 9010-FRP-4103	1/2	N/A 1.42

INCONTROL SYSTEMS INC

EX5394

UNIT 5 28 FULTON WAY, RICHMOND HILL, ON L4B 1J5 CANADA

High-pressure system units. Carbon Dioxide extinguishing system units in the 100 lb capacity. The operating temperature limits for these units are 0 F

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

Carbon Dioxide Extinguishing System Units, General Use (FYJR)—Continued

to 130 F. These units have an operating pressure of 850 psig at 70 F. The following components are covered in this Listing:

Cylinder Valve Assemblies

Description	Nom Pipe Size	Equivalent Length, m Schedule 40
Model SW-50M, master valve, P/N 06-0233	1/2	1.42
Model SW-50S, slave valve, P/N 06-0232	1/2	1.42

Cylinder Valve Actuators

Description	Part No.
Local manual/ pneumatic actuator for SW-50 valves	06-0235
Solenoid kit for SW-50 valves	06-0287
Solenoid kit for SW-50 valves	06-0322

Cylinder Valve Accessories

Description	Part No.	Equivalent Length, m Schedule 40
Discharge bend c/w check valve for SW-50 valves	06-0237	2.22
Discharge bend c/w adaptor for SW-50 valves	06-0242	2.22

Check Valves

Size, NPS	Part No.	Equivalent Length, m Schedule 40
1/2	06-0140	0.7

Header Safety Device

Size, NPT	Part No.
1/2	06-0276

JANUS FIRE SYSTEMS

EX15548

1102 RUPCICH D, CROWN POINT IN 46307

High-pressure system units. Carbon Dioxide extinguishing system units in the 100 lb capacity. The operating temperature limits for these units are 0 F to 130 F. These units have an operating pressure of 850 psig at 70 F.

The following components are covered in this Listing:

Size & Part No.	Selector Valves	Equivalent Length Ft
Globe Type	Nom Pipe Size In.	Schedule 80 Schedule 40
100 lb assembly w/ master valve, P/N 19559	1/2	N/A 1.42
100 lb assembly w/ slave valve, P/N 19613	1/2	N/A 1.42
75 lb assembly w/ master valve, P/N 19560	1/2	N/A 1.42
75 lb assembly w/ slave valve, P/N 19614	1/2	N/A 1.42
50 lb assembly w/ master valve, P/N 19561	1/2	N/A 1.42
50 lb assembly w/ slave valve, P/N 19615	1/2	N/A 1.42
100 lb pilot assembly, P/N 99465	1/2	N/A 1.42
75 lb pilot assembly, P/N 99466	1/2	N/A 1.42
50 lb pilot assembly, P/N 99466	1/2	N/A 1.42
100 lb food grade assembly, P/N 99464	1/2	N/A 1.42
75 lb food grade assembly, P/N 99463	1/2	N/A 1.42
50 lb food grade assembly, P/N 99462	1/2	N/A 1.42
Local manual/ pneumatic actuator, P/N 19589	N/A	N/A N/A
24V Solenoid kit, P/N 19585	N/A	N/A N/A
24V (XP) Solenoid kit, P/N 99733	N/A	N/A N/A
Discharge bend c/w check valve, P/N 99707	1/2	N/A 2.22
Discharge bend c/w adaptor, P/N 99706	1/2	N/A 2.22
Header Safety Device, P/N 19598	N/A	N/A N/A

Low-pressure (300 psi) carbon dioxide system apparatus consisting of storage tanks of 1.25, 2.75, 4, 6, 8, 10, 12, 17, 24, 30, 38 and 45 ton capacities for horizontal storage units and 6, 14, 30 and 50 ton capacities for vertical storage units.

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS
(FWFZ)Carbon Dioxide Extinguishing System Units, General Use
(FYJR)—Continued

age units, listed refrigeration unit for maintaining the carbon dioxide at 0°F temperature, and necessary controls, piping and discharge devices. Finished tank assembly model numbers are 19354, 19355, 19356, 19357, 19358, 19359, 19360, 19361, 19362, 19363, 19364 and 19365 for the 1.25 to 45 ton horizontal units, respectively; and model numbers 19366, 19367, 19368 and 19369 for the 6 to 50 ton vertical units, respectively.

KIDDE-FENWAL INC**EX923**

400 MAIN ST, ASHLAND MA 01721

High pressure system units.

Carbon dioxide system units for use in forming high pressure systems consisting of the following components:

Cylinder Valve Assemblies

For use with 10-, 15-, 20-, 25-, 35-, 50-lb cylinders. Classed ICC 3A or 3AA.

Nom Pipe Size In.	Equivalent Length Ft	
	Schedule 80	Schedule 40
1/2	37	73

Includes No. 981372 cylinder valve, No. 966917 or 252184 flexible connecting hose or No. 934208 direct connector, and with one of the following discharge heads: No. 872442 or 872450

For use with 20-, 35-lb cylinders. Classed ICC 3A or 3AA.

Nom Pipe Size In.	Equivalent Length Ft	
	Schedule 80	Schedule 40
1/2	49	97

Includes No. 843717 or 875480 cylinder valve, and connecting nut and tail piece of a 1/2 in. pipe union.

For use with 75-, 100-lb cylinders. Classed ICC 3A or 3AA.

Nom Pipe Size In.	Equivalent Length Ft	
	Schedule 80	Schedule 40
1/2	16	31

Includes No. 840253 cylinder valve, No. 800813 or 251821 flexible connecting hose and one of the following discharge heads: No. 872442 or 872450

Size & Stock No.	Nom Pipe Size In.	Equivalent Length Ft	
		Schedule 80	Schedule 40
1/2 1 in. — 870023	1/2	6	11
3/4 1 in.-870022	3/4	10	17
1 1/2-3 in.-870122	1	13	—
1 1/4-1 in.-870032	1-1/4	35	—
1 1/2-1 in.-870123	1-1/2	24	—
2 1/2-3 in.-870049	2	55	—
2 1/2-3 in.-890010	2-1/2	50	—
2 1/2-3 in.-890010	3	159	—
3 1/2-4 in.-890208	3-1/2	80	—
3 1/2-4 in.-890208	4	157	—

Size & Part No.	Check Valve Nom Pipe Size In.	Equivalent Length Ft	
		Schedule 80	Schedule 40
1/2-in.-800327	1/2	4	7
3/4-in.-843407	3/4	8	14
with two 1/2 by 3/4-in. bushings	1/2	3	5-1/2
3/4 in.-800266	3/4	10	17
3/4 in.-843407	3/4	8	14
1-3/4 in.-800443	1	8	-
1-3/4 in.-843089	1	12	-
1-1/4 in.-800444	1-1/4	34	-
1-1/2 in.-870152	1-1/2	40	-
2-1/2 in.-870151	2	120	-
3-1/2 in.-870100	3	600	-

Size Device & Part No.	Misc Equipment Nom Pipe Size In.	Equivalent Length Ft	
		Schedule 80	Schedule 40
1/2 in. Pressure-operated trip-966383	1/2	22	44
Pilot port valve assembly 870915	1/2	3580	7090
3/4-in. Discharge delay			

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ) 23

Carbon Dioxide Extinguishing System Units, General Use
(FYJR)—Continued

Size Device & Part No.	Misc Equipment Nom Pipe Size In.	Equivalent Length Ft	
		Schedule 80	Schedule 40
valve-870171	1/2	6	11
3/4-in. Discharge delay valve-870171	3/4	9	15

Operating Heads

Local manual, vented, lever operated, Nos. 870652, 870897

Local manual or remote cable, No. 979469

Local manual or remote cable, No. 871716

Local manual or remote cable, No. 874412

Pressure operated, No. 872086

Pneumatic control, Model B-4602

Electric controls, Nos. 803617, 890149, 890164, 890165, 890181

Pneumatic Release Accessories

Heat Actuated Devices, Nos. 76747, 840845. Shall be installed on ceiling in protected space not more than 10 ft from end or side walls or more than 20 ft between devices. Not more than 5 heat actuated devices on any pneumatic release.

Mercury checks, 2 well, No. 871345 3 well, No. 871346

Pneumatic selector valve, No. 871364

Pneumatic transmitter, No. 890251, for operation of pneumatic releasing devices and related equipment. Not more than six pneumatic releasing devices and 450 ft of copper tubing shall be used in any system.

Cable Release Accessories

Dual Remote-Manual Control, No. 893288

Enclosed Pulley, No. 803807

Fusible Link Actuator, No. 874414

Multiple Pull Boxes, Nos. 274924, 840051, 840058, 840386

Pull Box, Flush Type, No. 840098

Pull Box, Surface Type, No. 871403

Pull Station, Surface Type, No. 843292

Waterproof Pulley, No. 803808

Discharge Delay Device

For 15- to 60-second delay, No. 871071.

Pilot Port Valve

For use in controlling secondary cylinder and/or selector valve, No. 870915.

Miscellaneous Equipment

Pressure operated siren, No. 981574.

Line discharge indicator and vent assembly, No. 967082.

Door and window releases, Nos. 874290, 966383.

Electrical Components -For Use With High Pressure System Units.**Operating Heads**

Electro-manual, Part Nos. 803617, 890149, 890164, 890165, 890181.

Thermostats

Listed types, rated not less than 5 amp, 115 v, ac, and 0.5 amp, 125 v, dc, and "Fyrindex" Models S-15-C, S-15-C1, S-17-F, S-17-F1.

Transfer Switch

Electrical only, Model MR.

Test Station

Electrical only, Model TS.

Pressure Switches

Electro-pneumatic, Models B4458, B4459, Part Nos 486536, 486536-01, 873752.

Pressure Switches, Explosion Proof

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

Electro-pneumatic, Models B4325, B4456.

Hazardous Locations Class I, Groups C, D. Electro-pneumatic, Part Nos. 872025, 872635.

Pilot Port Pneumatic Transmitters

Electro-pneumatic, Part Nos. 890176, 890305.

Remote Release Stations

Break-glass type, Part Nos. 892373 to 892376 incl.

Pilot Port Switch

Electrical only, Part Nos. 802543, 870879.

Bells

Electrical only, Part Nos. 19856, -7, 20056, 20662, -4.

MINIMAX GMBH & CO KG**EX6388**

INDUSTRIESTRASSE 10/12 23840, BAD OLDSELOE GERMANY

High pressure carbon dioxide extinguishing system units, stored pressure type, having a nominal charging capacities of 4, 8, 10, 27, 30, 45, 50, 53.4 and 60 kg (8.8, 17.6, 22, 59.5, 66, 99, 110, 118 lb) of carbon dioxide. The units have an operating pressure of 850 psig (58 bar) at 70° F with operating temperatures of -18° C to 50° C (0° F to 120° F).

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

24

Carbon Dioxide Extinguishing System Units, General Use (FYJR)—Continued

Discharge Components

Devices	Part No.	Nom Pipe Size, m (in)	Equivalent Length, mm (ft) Schedule 40
Discharge Valve, Flexhose and Check Valve Assembly	—	12 (1/2)	6.5 (21.3)
Discharge Valve, Type K85-20.0-S59	885991	12 (1/2)	—
Discharge Valve, Type K85-20.0-S9	829759	12 (1/2)	—
Flexible Hose	859510	12 (1/2)	—
Ccheck Valve	873930	12 (1/2)	—
Selector Valve	885189	25 (1)	0.18 (0.6)
Selector Valve	885190	32 (1-1/4)	0.24 (0.8)
Selector Valve	885191	40 (1-1/2)	0.27 (0.9)
Selector Valve	885192	50 (2)	0.37 (1.2)
Selector Valve	873217	65 (2-1/2)	0.43 (1.4)
Selector Valve	876255	80 (3)	0.55 (1.8)

Actuation Components

Device	Part No.	
Solenoid Release Device - 24V		885738
Solenoid Release w/ Chocking Device - 24V		885530
Pneumatic Release Device		227303
Release Box, VZ3		886160
Release Box Solenoid - 24V		887363
Mechanical Disable Device		762610
Timer Assembly		230501
Pneumatic Control Device		827878
Pilot Blocking Valve		878070
Three Way Ball Valve, DN4		605160
Non-Return Valve, DN4		848891
Shuttle Valve, DN4		131406
Shuttle Valve, DN8		131420
Pilot Control Valve Manifolds, 2-15 branches	830778, 830791, 830808, 830833, 830857, 830870, 830894, 830912, 830936, 830950, 830973, 830985, 830997, 834115	
Makrofon, Pneumatic Alarm		860050
Shuttle Non-return Valve, DN4		886247
Shuttle Non-return Valve, DN8		886248

Miscellaneous Equipment

Device	Part No.	
Pilot Cylinder Support		812558
Single Cylinder Support		774925
Weighing Device, WE4, WE4-L	888802, 888803	
Safety Relief Valve		886282
Disable Device Release Box		886013
Blocking Device, MX		885375
Cylinder D25-H30		227303
Cylinder D55-H106		847199
Cylinder D55-H206		822613
2-16, 67.5 L Master Actuation Cylinder Rack	NZ 92-9010	
2-16, 80 L Master Actuation Cylinder Rack	NZ 92-9042	
2-16, Slave Actuation Cylinder Rack	NZ 92-9011	

TOMCO EQUIPMENT CO, DBA TOMCO FIRE SYSTEMS EX15797 7619 HAMILTON AVE, CINCINNATI OH 45231

High-pressure system units. Carbon Dioxide extinguishing system units in the 100 lb capacity. The operating temperature limits for these units are 0 F to 130 F. These units have an operating pressure of 850 psig at 70 F.

The following components are covered in this Listing:

Cylinder Valve Assemblies

Description	Nom Pipe Size	Equivalent Length, m Schedule 40
Model SW-50M, master valve, P/N 96-06-0233	1/2	1.42
Model SW-50S, slave valve, P/N 96-06-0232	1/2	1.42

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

Carbon Dioxide Extinguishing System Units, General Use (FYJR)—Continued

Cylinder Valve Actuators

Description	Part No.
Local manual/ pneumatic actuator for SW-50 valves	96-06-0235

Cylinder Valve Accessories

Description	Part No.	Equivalent Length, m Schedule 40
Discharge bend c/ w check valve for SW-50 valves	96-06-0237	2.22
Discharge bend c/ w adaptor for SW-50 valves	96-06-0242	2.22

Check Valves

Size, NPS	Part No.	Equivalent Length, m Schedule 40
1/2	96-06-0140	0.7

Header Safety Device

Size, NPT	Part No.
1/2	96-06-0276

Carbon Dioxide Extinguishing System Units, Hand Hose Line (FYWZ)

USE AND INSTALLATION

This category covers hand hose line systems consisting of a hose reel or rack, hose, and discharge nozzle assembly connected by fixed piping to a supply of carbon dioxide. A separate carbon dioxide supply can be provided for hand hose line use or carbon dioxide can be piped from a central storage unit which may be supplying several hose lines or fixed manual or automatic systems.

Carbon dioxide extinguishing systems are intended to be designed, installed and maintained in accordance with ANSI/NFPA 12, "Standard on Carbon Dioxide Extinguishing Systems."

The individual Listings contain information regarding the equivalent length of system units that effect the flow of carbon dioxide in pipelines. This may be used in computing system flow rates according to the methods described in ANSI/NFPA 12.

RELATED PRODUCTS

See Carbon Dioxide Extinguishing System Units (FYJR).

ADDITIONAL INFORMATION

For additional information, see Carbon Dioxide Extinguishing System Units (FXVT), Extinguishers and Extinguishing System Units (FWFZ) and Fire Protection Equipment (AAFP).

REQUIREMENTS

The basic standard used to investigate products in this category is ANSI/NFPA 12, "Standard on Carbon Dioxide Extinguishing Systems."

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 "Carbon Dioxide Extinguishing System" (or "Carbon Dioxide Ext System").

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.

ANSUL INC EX2969 1 STANTON ST, MARINETTE WI 54143

These are special system units to be used in forming high- or low pressure hand hose line systems.

Device & Model or Part No.	Equivalent Length Nom Pipe Size In.	Equivalent Length Ft Schedule 80	Equivalent Length Ft Schedule 40
Hose reels, Part No. 41516	3/4	12	21
	1	45.5	-
1/2-in. hose (50-ft length), Part No. 42217	1/2	8	14.5
	3/4	29.4	50.2



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EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS
(FWFZ)Carbon Dioxide Extinguishing System Units, Hand Hose Line
(FYWZ)—Continued

Device & Model or Part No.	Equivalent Length Nom Pipe Size In.	Equivalent Length Ft	
		Schedule 80	Schedule 40
3/4-in. hose (50-ft length), Part No. 42222	3/4 1	40.5 153.5	70 -
Discharge nozzle assembly, Model 50-75, Part No. 42843	3/8	5	11.5
Discharge nozzle assembly, Model CN-100, Part No. 42303	1/2	20	40
Discharge Nozzle Model No.	Orifice Size	Orifice Code No.	
Model 50-75	-	6.5	
Model CN-100	-	12.0	

CHEMETRON FIRE SYSTEMS

EX1370

3RD FL 4801 SOUTHWICK DR, MATTESON IL 60443

Low Pressure Devices.

Model No.	Hose Reel & Racks Nom Pipe Size In.	Equivalent Length Ft	
		Schedule 80	Schedule 40
41610	1	13	—
41610	1-1/2	110	—
B46040 Hose Rack for 1/2 or 3/4-in. Hose	—	—	—
C41630	1/2	10	20
C45894	3/4	44.5	77

Part No.	Hose Nom Pipe Size In.	Equivalent Length Ft	
		Schedule 80	Schedule 40
126242 (50 ft length)	1/2	53	104
126243 (25 ft length)	3/4	21	37
126244 (50 ft length)	3/4	33	57.5
12690 (50 ft length)	1	33	—
126222 (50 ft length)	1-1/2	68.5	—
12666A (50 ft length)	1-1/4	139.5	—

Part No.	Handline Valve Nom Pipe Size In.	Equivalent Length Ft	
		Schedule 80	Schedule 40
B45694-1	1/2	6.5	13
B45694-2	3/4	14.5	25
C32543	1	24.5	—
C24832	1-1/2	60.5	—

Model No.	Playpipe Assembly Nom Pipe Size In.	Equivalent Length Ft	
		Schedule 80	Schedule 40
C45714-1, -2	1/2	—	—
C45552	3/4	—	—
D21873-1, -2	1	—	—
D22022-1, -2, -3	1-1/2	—	—

Model or Part No.	Nozzle Nom Pipe Size In.	Equivalent Orifice No.	
		Schedule 80	Schedule 40
B45864	1/2	6.5 to 10	—
B45953	1	12 to 20	—
CPN-100	1	16 to 24	—
CPN-150	1-1/2	20 to 40	—

Note: The CPN nozzles will be suffixed by two letters which designate the material (aluminum) and orifice size.

Electrical Equipment

Hose reel actuators, Models B46051 and D19940.

High Pressure Devices. The 1/2- and 3/4-in. hose reels, hoses, hand line valves, playpipe assemblies, nozzles and the Model B46051 hose reel actuator listed as low pressure devices for this manufacturer are also suitable for high pressure.

“Transitank”. Model 750 T-1, 3/8-ton capacity, mobile extinguishers. Device includes insulated pressure vessel for storage of liquid carbon dioxide, refrigerator and associated controls for maintaining a temperature of 0 F in the pressure vessel, relief valves, 50-ft. of hose, play-pipe with Cardox projection nozzle, and shut-off valve.

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ) 25

Carbon Dioxide Extinguishing System Units, Hand Hose Line
(FYWZ)—Continued

The equivalent lengths of recognized variations are as follows:

Model No.	Nom Pipe Size In.	Equivalent Length Ft	
		Schedule 80	Schedule 40
750T-1 Stationary Mount- ing, Less Hose	1-1/2	5	-
750T-1 Portable Mount- ing, 50 ft, 3/4-in. Hose	3/4	56	97
750T-1 Portable Mount- ing, 50 ft, 1-in. Hose	1	49	-

For use where larger quantities of carbon dioxide than are available in usual hand portable fire extinguishers are deemed essential. Mobility of units equivalent to that of four wheel, platform-type trucks of equal load and comparable running gear.

Electrical supply essential for operation of refrigerator during stand-by storage, 120 v, 60 cy ac. Equipment for use on other electrical service available.

Model No.	Hose Reel & Hose Assembly Nom Pipe Size In.	Nozzle Orifice In.	Hose Length Ft	Equivalent Length Ft Schedule 80
1-030-0100	1	1/2	50	127
	1	21/32	50	54
	1	25/32	50	62
	1	15/16	50	60
	1	1-1/16	50	65
1-030-0101	1	1/2	100	200
	1	21/32	100	172
	1	1-1/16	100	138

Model No.	Handline Valve Nom Pipe Size In.	Nozzle Orifice In.	Equivalent Length Ft Schedule 80
2-001-0001	1	1/2	28
	1	21/32	30
	1	25/32	20
	1	15/16	19
	1	1-1/16	30

Electrical Equipment

Actuator assembly
Bleeder-timer cabinet 24 v dc, 0-60 sec
Bleeder-timer cabinet 24 v dc, 0-300 sec
Bleeder-timer cabinet 120 v dc, 0-60 sec
Bleeder-timer cabinet 120 v dc, 0-700 sec

Part No.

1-030-0200
4-002-0002
4-002-0005
4-002-0001
4-002-0004

KIDDE-FENWAL INC

EX1114

400 MAIN ST, ASHLAND MA 01721

These are special units to be used in forming high pressure hand hose line systems.

Device & Model or Part No.	Equivalent Length Nom Pipe Size In.	Equivalent Length Ft	
		Schedule 80	Schedule 40
Hose reel, Model B4463	1/2	10	20
Hose reel, Part No. 209350	3/4	7	12
1/2 in. hose (50 ft length)	1/2	63	124
Part No. 961966	3/4	312	541
3/4 in. hose (50 ft length)	3/4	371/2	65
Part No. 204188	1	143	—
Shut-off valve, Part No. 840045	1/2	11/2	21/2

Equivalent Orifice

Discharge Nozzle Model No.

Models 50, 75, 100
Model J

Orifice Code No.

6.0 to 8.5
4.0 to 15.0

Carbon Dioxide Extinguishing System Units,
Local Application (FZKX)

USE AND INSTALLATION

This category covers local application systems consisting of a fixed supply of carbon dioxide permanently connected to a system of fixed piping with nozzles arranged to discharge directly into the fire. Local application nozzles are tested to determine their fire extinguishment limitations. This data is shown in tabular form in the following table.

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

26

Carbon Dioxide Extinguishing System Units, Local Application (FZKX)—Continued

ings. Generally, for overhead nozzles the tables give carbon dioxide design flow rate (90% of splash rate, lbs per min) versus height (ft), and maximum area (sq ft) versus height (ft) limits, within which extinguishment has been obtained in fire tests. Some Listings for overhead nozzles have the nozzle limitations described as an application rate of carbon dioxide in lb per min per sq ft versus height, and maximum area versus height. The required flow rate, in lb per min at a given height is the product of the area to be protected, within the maximum area shown for the height, and the application rate. The resulting flow rate, irrespective of the area to be protected, must not be less than the minimum flow rate shown for the height. For tank-side nozzles the tables give maximum and minimum design flow rates (lbs per min) within which extinguishment has been obtained in fire tests, versus area coverage (sq ft), supplemented by other limitations on nozzle spacing and maximum area extinguished. For linear nozzles, the tables give maximum and minimum design flow rate (lb per min) versus throw (maximum distance across hazard).

Carbon dioxide extinguishing systems are intended to be designed, installed and maintained in accordance with ANSI/NFPA 12, "Standard on Carbon Dioxide Extinguishing Systems."

Individual nozzles may be provided with a range of orifice sizes that have been rated for equivalent number by comparison with the "standard" orifice described in ANSI/NFPA 12. Orifice size numbers are marked on the body of the nozzle. Selection of nozzle orifices in individual system designs to achieve design flow rates is dependent on system flow rate calculations.

RELATED PRODUCTS

See Carbon Dioxide Extinguishing System Units, General Use (FYJR).

ADDITIONAL INFORMATION

For additional information, see Carbon Dioxide Extinguishing System Units (FXVT), Extinguishers and Extinguishing System Units (FWFZ) and Fire Protection Equipment (AAFP).

REQUIREMENTS

The basic standard used to investigate products in this category is ANSI/NFPA 12, "Standard on Carbon Dioxide Extinguishing Systems."

UL MARK

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ANSUL INC

EX2968

1 STANTON ST, MARINETTE WI 54143

Low pressure extinguishing system nozzles. Model A, for use with appropriately sized orifice to obtain required rate of discharge.

Height Ft	Flow Rate Lb Per Min	Area of Coverage Sq Ft
1	12	3.5
2	25	6.8
3	35	10.0
4	37-1/2	10.0
5	38-1/2	10.0
6	40	10.0
7	41	10.0

Model D, for use with appropriately sized orifice to obtain required rate of discharge.

Height Ft	Flow Rate Lb Per Min	Area of Coverage Sq Ft
5-1/2	24	2.5
6	29	5.0
7	40	10.0

Model LPNR nozzle for use with orifice of appropriate size to obtain required rate of discharge.

Height Ft	Flow Rate Lb Per Min	Area of Coverage Sq Ft
16	330	29
17	367	33
18	405	36
19	440	40

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

Carbon Dioxide Extinguishing System Units, Local Application (FZKX)—Continued

Height Ft	Flow Rate Lb Per Min	Area of Coverage Sq Ft
20	480	50

High pressure extinguishing system nozzles. Model A, for use with appropriately sized orifice to obtain required rate of discharge.

Height Ft	Flow Rate Lb Per Min	Area of Coverage Sq Ft
1.5	14.0	2.5
2	18	3.3
3	26	5.0
4	33	6.6
5	41	8.3
5-3/8	44	9.0
6	48-1/2	9.0

Model D, for use with appropriately sized orifice to obtain required rate of discharge.

Height Ft	Flow Rate Lb Per Min	Area of Coverage Sq Ft
1 1/4	11	2.5
2	16	3.9
2 1/2	19	5.0
3	22	5.0
4	27 1/2	5.0
5	33 1/2	5.0
6	39 1/2	5.0
7	45	5.0
7 5/8	48 1/2	5.0

6 in. multi-discharge nozzle, Model 6MD, (1/2 in. pipe size) for use with appropriately sized orifice to obtain required rate of discharge.

Height Ft	Flow Rate Lb Per Min	Area of Coverage Sq Ft
3	28 1/2	5.1
4	38	6.2
5	47	7.4
6	56 1/2	8.6
7	66	9.8
8	75 1/2	11.0
9	84 1/2	12.1
9.25	86 1/2	12.5
10	94	12.5
11	103	12.5

6 in. multi-discharge nozzle, Model 6MDL, (3/4 in. pipe size) for use with appropriately sized orifice to obtain required rate of discharge.

Height Ft	Flow Rate Lb Per Min	Area of Coverage Sq Ft
10	86	11.5
11	97	13.8
12	108	16.2

Cone nozzle, Model C for use with appropriately sized orifice to obtain required rate of discharge.

Height Ft	Flow Rate Lb Per Min	Area of Coverage Sq Ft
31/2	21	6.1
4	31 1/2	8.2
5	51 1/2	12.3
6	72	16.4
7	92	20.5
8	112 1/2	24.6
8 1/2	122	25.0
9	132	25.0

Linear nozzle, Models 3L, 4L or 5L, for use with appropriately sized orifice to obtain required rate of discharge.

For installation within the following limitations: Maximum distance across hazard, 5 ft; nozzles to be installed on one side of hazard only; end to end spacing of nozzles shall be with no clearance; flow rate for various distances across hazard shall be in accordance with the following table:

Distance Across Hazard Ft	Flow Rate Lb Per Min Per Lin Ft of Nozzle
	Min
3	11 1/2
3 1/2	13
	Max
	10 1/2
	17 1/2

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EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

Carbon Dioxide Extinguishing System Units, Local Application (FZKX)—Continued

Distance Across Hazard Ft	Flow Rate Lb Per Min Per Lin Ft of Nozzle	
	Min	Max
4	14	16 1/2
4 1/2	14 1/2	18 1/2
5	15	20 1/2

Authorities having jurisdiction to be consulted before installation.

CHEMETRON FIRE SYSTEMS EX2157

3RD FL 4801 SOUTHWICK DR, MATTESON IL 60443

Low pressure extinguishing system nozzles. Model FC41227-1 nozzle, for use with appropriate sized orifice Model FB41231, to obtain the required rate of discharge.

Height Ft	Required Application Rate Lb Per Min Per Sq Ft	Min Flow Rate LPM	Max of Coverage Sq Ft
1	6.2	31.0	7.5
2	5.6	39.2	8.9
3	5.3	46.7	10.3
4	5.0	53.0	11.8
5	4.8	60.0	13.1
6	4.7	68.2	14.5

Height Ft	Flow Rate Lb Per Min	Area of Coverage Sq Ft
7	74	16.0
8	80	18.0
9	87	20.0
10	93	21.5

Model FC41227-2 nozzle, for use with appropriate sized orifice, Model FB41231, to obtain the required rate of discharge.

Height Ft	Flow Rate Lb Per Min	Area of Coverage Sq Ft
2	73	18.0
3	84	21.5
4	94	25.0
5	105	28.0
6	115	31.5
7	126	34.5
8	136	38.0
9	147	41.0
10	157	44.5

“CN” nozzle, Model FD3852 of appropriate size as indicated by suffix numbers, to obtain the required rate of discharge.

Height Ft	Flow Rate Lb Per Min	Area of Coverage Sq Ft
2	108	15.0
3	120	15.0
4	132	15.0
5	144	15.0
6	156	15.0
7	168	15.0
8	180	15.0
9	192	15.0
10	204	16.0
11	216	20.0
12	228	23.0
13	240	25.0
14	252	25.0
15	264	25.0
16	276	25.0
17	288	25.0
18	300	25.0

High pressure extinguishing system nozzles. Model FC41227-1 nozzle, for use with appropriate sized orifice Model FB41231, to obtain the required rate of discharge.

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ) 27

Carbon Dioxide Extinguishing System Units, Local Application (FZKX)—Continued

Height Ft	Height Ft 1 Required Flow Rate Lb Per Min Per Sq Ft	Flow Rate Lb Per Min 27 Min Flow Rate LPM	Area of Coverage Sq Ft 5 Max Area of Coverage Sq Ft
2	5.1	23.0	6.8
3	4.7	35.3	8.5

Height Ft	Flow Rate Lb Per Min	Area of Coverage Sq Ft
4	46	10.0
5	57	13.0
6	68	15.5
7	79	18.0

Model FC41227-2 nozzle, for use with appropriate sized orifice Model FB41231, to obtain the required rate of discharge.

Height Ft	Flow Rate Lb Per Min	Area of Coverage Sq Ft
3	51.5	10.0
4	68	15.0
5	84.5	20.0
6	101	25.0
7	117.5	28.0
8	134	30.0
9	150.5	30.0
10	167	30.0
11	183-1/2	30.0
12	200	30.0

FIKE CORP EX4447

704 S 10TH ST PO BOX 610, BLUE SPRINGS MO 64015

High pressure extinguishing system nozzles. Model S, for use with appropriately sized orifice to obtain required rate of discharge.

Height Ft	Flow Rate Lb Per Min	Area of Coverage Sq Ft
2	29.6	4.6
3	45.1	7.2
4	60.6	9.8
5	76.1	12.5

JANUS FIRE SYSTEMS EX15548

1102 RUPCICH D, CROWN POINT IN 46307

High-pressure extinguishing system nozzles. Model JLA Nozzle Assemblies, for use with appropriate sized orifice to obtain require rate of discharge.

Model JLA Assemblies w / 4” shell (part numbers 19382, 19383, 19650, 19651)

Height Ft	Flow Rate Lb Per Min	Area of Coverage Sq Ft
2	24	4.5
3	35	7.5
4	46	10.0
5	57	13.0
6	68	15.5
7	79	18.0

Model JLA Assemblies w / 6” shell (part numbers 19384, 19385, 19652, 19653)

Height Ft	Flow Rate Lb Per Min	Area of Coverage Sq Ft
3	51.5	10.0
4	68.0	16.0
5	84.5	20.0
6	101.0	23.0
7	117.5	26.5
8	134.0	30.0
9	150.5	33.5

Low-pressure extinguishing system nozzles. Model JLA Nozzle Assemblies, for use with appropriate sized orifice to obtain require rate of discharge.

Model JLA Assemblies w / 4” shell (part numbers 19382, 19383, 19650, 19651)

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS
(FWFZ)

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Carbon Dioxide Extinguishing System Units, Local Application
(FZKX)—Continued

Height Ft	Flow Rate	Area of Coverage
	Lb Per Min	Sq Ft
2	41	7.5
3	48	9.0
4	54	11.0
5	61	12.5
6	68	14.5
7	74	16.0
8	80	18.0
9	87	20.0
10	93	21.5

Model JLA Assemblies w/ 6" shell (part numbers 19384, 19385, 19652, 19653)

Height Ft	Flow Rate	Area of Coverage
	Lb Per Min	Sq Ft
2	73	18.0
3	84	21.5
4	94	25.0
5	105	28.0
6	115	31.5
7	126	34.5
8	136	38.0
9	147	41.0
10	157	44.5

KIDDE-FENWAL INC

EX923

400 MAIN ST, ASHLAND MA 01721

High pressure extinguishing system nozzles. Small bowl nozzle, Type S for use with appropriate sized orifice to obtain required rate of discharge.

Height Ft	Flow Rate	Area of Coverage
	Lb Per Min	Sq Ft
1	16	5.0
2	24	7.0
3	32	8.7
4	41	10.7
5	49	12.6
6	57	14.5
7	66	15.0
8	74	15.0

Intermediate bowl nozzle, Type M for use with appropriate sized orifice to obtain required rate of discharge.

Height Ft	Flow Rate	Area of Coverage
	Lb Per Min	Sq Ft
2	31	9.0
3	45	11.0
4	59	13.0
5	73	15.0
6	87	17.0
7	101	19.0
8	115	20.0
9	129	20.0

Large bowl nozzle, Type J for use with appropriate sized orifice to obtain required rate of discharge.

Height Ft	Flow Rate	Area of Coverage
	Lb Per Min	Sq Ft
2	52	14.0
3	71	16.7
4	89	19.4
5	107	22.0
6	126	24.7
7	144	27.3
8	163	30.0
9	182	30.0
10	201	30.0

Tankside nozzle, Type L with appropriate sized orifice to obtain required rate of discharge.

For installation within the following limitations: Maximum distance across hazard 4 ft for nozzles on one side of hazard only, 8 ft for nozzles on opposing sides; maximum distance between nozzles on the same side 5 ft; maximum distance from nozzle to corner of hazard 2-1/2 ft; area coverage per nozzle 2 sq ft minimum to 11-3/4 sq ft maximum, with flow rates within the limitations shown in the table below; for fractional areas, interpolate, on a direct by proportional basis, between flow rates given below.

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

Carbon Dioxide Extinguishing System Units, Local Application
(FZKX)—Continued

Area Coverage Per Nozzle Sq Ft	Flow Rate	
	Lb Per Min Per Nozzle	Max
2	8-1/2	39-1/2
3	12-1/2	41
4	16-1/2	42-1/2
5	20-1/2	44-1/2
6	24-1/2	46
7	28-1/2	48
8	33	49-1/2
9	37	51
10	41-1/2	53
11	47-1/2	54-1/2
11-3/4	56	56

Carbon Dioxide Extinguishing System Units,
Special Application (FZYV)

USE AND INSTALLATION

This category covers devices intended for use with other Listed devices for general use to form carbon dioxide systems for special applications.

Carbon dioxide extinguishing systems are intended to be designed, installed and maintained in accordance with ANSI/NFPA 12, "Standard on Carbon Dioxide Extinguishing Systems."

Some of the units are intended specifically for extinguishment of fires in hoods, filters and ducts used for the ventilation of restaurant cooking equipment installed in accordance with the requirements of ANSI/NFPA 96, "Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations," where such fires originate in the entrance to this equipment. Special protection is required for fires originating elsewhere in the duct or originating in associated cooking appliances. The fuel to all protected appliances and energy to electrically-heated fat fryers is shut down upon system actuation. The latter may spread to the protected area and also serve as a constant source of ignition. Additional protection is also required in the duct where pools of grease may collect (e.g., depressions, bends, traps).

RELATED PRODUCTS

See Carbon Dioxide Extinguishing System Units, General Use (FYJR).

ADDITIONAL INFORMATION

For additional information, see Carbon Dioxide Extinguishing System Units (FXVT), Extinguishers and Extinguishing System Units (FWFZ) and Fire Protection Equipment (AAFP).

REQUIREMENTS

The basic standard used to investigate products in this category is ANSI/NFPA 12, "Standard on Carbon Dioxide Extinguishing Systems."

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 "Carbon Dioxide Extinguishing System" (or "Carbon Dioxide Ext System").

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.

CHEMETRON FIRE SYSTEMS

EX1368

3RD FL 4801 SOUTHWICK DR, MATTESON IL 60443

Projection nozzles, for low pressure carbon dioxide systems, intended for use where carbon dioxide discharge nozzles must be located at distances in excess of 16 ft from the protected hazard. Maximum distance of nozzle from hazard will be governed by local installation conditions such as wind and side drafts.

Model No.	Inlet Size In.	Orifice Size Range
CPN-100	1	2 through 23
CPN-150	1-1/2	19 through 38

Carbon Dioxide Extinguishing System Units,
Total Flooding (CMT)

USE AND INSTALLATION

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

Carbon Dioxide Extinguishing System Units, Total Flooding (GAMT)—Continued

This category covers total-flooding systems consisting of a fixed supply of carbon dioxide permanently connected to fixed piping with fixed nozzles arranged to discharge carbon dioxide into an enclosed space or enclosure about the hazard.

Carbon dioxide extinguishing systems are intended to be designed, installed and maintained in accordance with ANSI/NFPA 12, "Standard on Carbon Dioxide Extinguishing Systems."

Total-flooding nozzles may be provided with a range of orifice sizes, which have been rated for equivalent number by comparison with the "standard" orifice described in ANSI/NFPA 12. Selection of nozzle orifices in individual system designs to achieve design flow rates is dependent on system flow rate calculation.

RELATED PRODUCTS

See Carbon Dioxide Extinguishing System Units, General Use (FYJR).

ADDITIONAL INFORMATION

For additional information, see Carbon Dioxide Extinguishing System Units (FXVT), Extinguishers and Extinguishing System Units (FWFZ) and Fire Protection Equipment (AAFP).

REQUIREMENTS

The basic standard used to investigate products in this category is ANSI/NFPA 12, "Standard on Carbon Dioxide Extinguishing Systems."

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 "Carbon Dioxide Extinguishing System" (or "Carbon Dioxide Ext System").

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.

ANSUL INC

EX2968

1 STANTON ST, MARINETTE WI 54143

The following nozzles shall be used with the appropriately sized orifice to obtain the required rate of discharge.

Item	Model or Part No.	Nom Pipe Size In.
4 in. Multi-discharge Nozzle	4MD	1/2
4 in. Multi-discharge Nozzle	4MDL	3/4
6 in. Multi-discharge Nozzle	6MD	1/2
6 in. Multi-discharge Nozzle	6MDL	3/4
Nozzle	A	1/2
Nozzle	D	1/2
Nozzle	LPNR	1-1/4
Nozzle	LPNR	1-1/2
Nozzle	LPNC	1-1/2
Regular Sealed Nozzle	RSF	1/2
Regular Sealed Nozzle	RSLF	3/4
Baffle Nozzle	B	1/2
Baffle Nozzle	BL	3/4
Regular Nozzle	R	1/2
Regular Nozzle	RL	3/4

High pressure extinguishing system nozzles. The following nozzles shall be used with the appropriately sized orifice to obtain the required rate of discharge.

Item	Model or Part No.	Nom Pipe Size In.
4 in. Multi-discharge Nozzle	4MD	1/2
4 in. Multi-discharge Nozzle	4MDL	3/4
6 in. Multi-discharge Nozzle	6MD	1/2
6 in. Multi-discharge Nozzle	6MDL	3/4
Cone Nozzle	C	1/2
Baffle Nozzle	B	1/2
Baffle Nozzle	BL	3/4
Gin Nozzle	G	1/2
Nozzle	A	1/2
Nozzle	D	1/2
Regular Nozzle	R	1/2
Regular Nozzle	RL	3/4

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ) 29

Carbon Dioxide Extinguishing System Units, Total Flooding (GAMT)—Continued

Item	Model or Part No.	Nom Pipe Size In.
Regular Sealed Nozzle	RS	1/2
Regular Sealed Nozzle	RSF	1/2
Regular Sealed Nozzle	RSLF	3/4
Sealed Nozzle	S	1/2
Nozzle	V	1/4
Nozzle	V	1/2
Nozzle	V	3/4
Nozzle	V	1
Nozzle	V	1-1/4
Nozzle	V	1-1/2
Nozzle	V	2
Nozzle	V	2-1/2
Nozzle	V	3

CHEMETRON FIRE SYSTEMS

EX2157

3RD FL 4801 SOUTHWICK DR, MATTESON IL 60443

Low pressure system units. Each of the following nozzles shall be used with the appropriate sized orifice to obtain the required rate of discharge.

Item	Model or Part No.	Nom Pipe Size In.
Nozzle	FC41227-1	1/2-3/4
Nozzle	FC41227-2	1/2-3/4
Nozzle	FB41231	1/2-3/4
Nozzle	FB41237	1/2-3/4
"CN" Nozzle	FD3852	1, 1-1/4, 1-1/2
Nozzle	B41835	1/2
Nozzle	B41652	1/2
Nozzle	B41654	1/2
Nozzle	B41659	1/2
Nozzle	B42308	1/4
Nozzle	B42309	3/8
Nozzle	C45999	1/2-3/4
Nozzle	B45953	1-1-1/4
Nozzle	C46000	1-1-1/4
Projection Nozzle	CPN-100	1
Projection Nozzle	CPN-150	1-1/2

High pressure system units. Each of the following nozzles shall be used with the appropriate sized orifice to obtain the required rate of discharge.

Item	Model or Part No.	Nom Pipe Size In.
Nozzle	FC41227-1	1/2-3/4
Nozzle	FC41227-2	1/2-3/4
Nozzle	FB41231	1/2-3/4
Nozzle	FB41237	1/2-3/4
Nozzle	B41835	1/2
Nozzle	B41652	1/2
Nozzle	B41654	1/2
Nozzle	B42308	1/4
Nozzle	B41659	1/2
Nozzle	B42309	3/8
Nozzle	C45999	1/2-3/4
Nozzle	B45953	1-11/4
Nozzle	C46000	1-11/4

Low or high pressure system units. Radial nozzles.

Item	Model or Part No.	Nom Pipe Size In.
Nozzle	1-037-1271, -1300, C1-037-0604, -1196	1/4
Nozzle	1-037-1271, -1301, C1-037-0605, -1197	3/8
Nozzle	1-037-1273, -1302, C1-037-0606, -1198	1/2
Nozzle	1-037-1274, -1303, C1-037-0607, -1199	3/4
Nozzle	1-037-1275, -1304, C1-037-0608, -1200	1
Nozzle	1-037-1276, -1305, C1-037-0609, -1201	1-1/4
Nozzle	1-037-1277, -1306, C1-037-0610, -1202	1-1/2
Nozzle	1-037-1278, -1307, C1-037-0611, -1208	2

Low-pressure Carbon Dioxide Nozzles

Documents

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EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

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Carbon Dioxide Extinguishing System Units, Total Flooding (GAMT)—Continued

Nozzle Part No.	Inlet Pipe Size In.	1-Port	2-Port	4-Port
1-010-0500	1/4	1.05 thru 8.60	1.48 thru 8.64	2.09 thru 8.64
1-010-0600	3/8	1.65 thru 10.99	1.60 thru 11.72	2.11 thru 11.82
1-010-0700	1/2	2.05 thru 14.18	2.05 thru 14.25	2.12 thru 14.75
1-010-0800	3/4	2.65 thru 18.93	2.72 thru 19.43	2.76 thru 19.73
1-010-0900	1-1/4	3.54 thru 24.52	3.48 thru 24.84	3.30 thru 24.44
1-010-1000	1-1/4	4.42 thru 27.90	4.47 thru 32.38	4.57 thru 32.07
1-010-1100	1-1/2	5.19 thru 27.52	5.24 thru 34.45	5.21 thru 38.16
1-010-1200	2	6.70 thru 27.40	6.71 thru 38.75	6.83 thru 48.85

FIKE CORP

EX4447

704 S 10TH ST PO BOX 610, BLUE SPRINGS MO 64015

Item	Model or Part No.	Nom Pipe Size In.	Orifice Code Range
"S" Nozzle	C80-010	1/2	1.0 thru 11.5
Vent Nozzle	C80-020	1/2	1.0 thru 13.5
Baffle Nozzle	C80-030	1/2	1.0 thru 13.5
360 deg Radial Nozzle	C80-041	1/2	3.5 thru 13.0
180 deg Radial Nozzle	C80-042	1/2	3.5 thru 13.0
360 deg Radial Nozzle	C80-043	3/4	10.0 thru 19.0
180 deg Radial Nozzle	C80-044	3/4	10.0 thru 17.0
360 deg Radial Nozzle	C80-045	1	15.0 thru 25.0
180 deg Radial Nozzle	C80-046	1	15.0 thru 25.0

JANUS FIRE SYSTEMS

EX15548

1102 RUPCICH D, CROWN POINT IN 46307

High or Low pressure system nozzles. The following nozzles shall be used with the appropriately sized orifice to obtain the required rate of discharge.

Item	Model or Part No.	Nom Pipe Size In.
JLA Nozzle Assembly, 4" Shell	19382, 19650	1/2
JLA Nozzle Assembly, 6" Shell	19384, 19652	1/2
JLA Nozzle Assembly, 4" Shell	19383, 19651	3/4
JLA Nozzle Assembly, 6" Shell	19385, 19653	3/4
Radial Nozzles, 1 Port, 90°, Brass	18493, 18494, 18495, 18496, 18497, 18498, 18499	3/8, 1/2, 3/4, 1, 1-1/2, 2
Radial Nozzles, 2 Port, 180°, Brass	18500, 18501, 18502, 18503, 18504, 18505, 18506	3/8, 1/2, 3/4, 1, 1-1/2, 2
Radial Nozzles, 4 Port, 360°, Brass	18507, 18508, 18509, 18510, 18511, 18512, 18513	3/8, 1/2, 3/4, 1, 1-1/2, 2
Radial Nozzles, 1 Port, 90°, Stainless Steel	18782, 18783, 18784, 18785, 18786, 18787, 18788	3/8, 1/2, 3/4, 1, 1-1/2, 2
Radial Nozzles, 2 Port, 180°, Stainless Steel	18789, 18790, 18791, 18792, 18793, 18794, 18795	3/8, 1/2, 3/4, 1, 1-1/2, 2
Radial Nozzles, 4 Port, 360°, Stainless Steel	18796, 18797, 18798, 18799, 18800, 18801, 18802	3/8, 1/2, 3/4, 1, 1-1/2, 2
Orifice Nozzles	19372	1/2

KIDDE-FENWAL INC

EX923

400 MAIN ST, ASHLAND MA 01721

High pressure extinguishing system nozzles. Each of the following nozzles shall be used with the appropriate sized orifice to obtain the required rate of discharge.

Item	Model or Part No.	Nom Pipe Size In.
Delayed Nozzle	Type D (for internal or external mounting)	1/2
Vent Nozzle	Type V	1/2
Small Nozzle	"S"	1/2
Miscellaneous Nozzle	KV	1/2
	MS	1/2
	KD	1/2
Intermediate Nozzle	"M"	3/4
Large Nozzle	"J"	3/4

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

Carbon Dioxide Extinguishing System Units, Total Flooding (GAMT)—Continued

MINIMAX GMBH & CO KG

EX6388

INDUSTRIESTRASSE 10/12 23840, BAD OLDESLOE GERMANY

Item	Model or Part No.	Nom Pipe Size In.	Orifice Code Range
Cable Floor Total Flood	MX1-1/4-H	1/4	1.0 thru 3.0
1/2" Standard Total Flood	RD 1/2	1/2	3.4 thru 14.4
1/2" Standard Total Flood	DD 1/2	1/2	3.4 thru 14.4
3/4" Standard Total Flood	RD 3/4	3/4	15.2 thru 20.6

CLEAN AGENT EXTINGUISHERS (GAOM)

USE AND INSTALLATION

This category covers clean agent extinguishers, which are portable appliances intended for operation over a temperature range of -40°F to 120°F unless otherwise noted in the individual Listings.

Fire extinguishing classifications are developed at normal ambient temperature (approximately 70°F) and may be reduced at lower temperatures.

In using extinguishers of this type, especially in unventilated places, such as small rooms, closets or other confined spaces, operators and others should take precautions to avoid the effects which may be caused by breathing the gases or vapors liberated or produced.

These extinguishers are intended to be installed, maintained and tested in accordance with the applicable requirements of ANSI/NFPA 10, "Standard for Portable Fire Extinguishers," and the manufacturer's owner's manual.

Clean agent fire extinguishers are intended to be used in accordance with the United States Environmental Protection Agency's (EPA) proposed rules for chemicals intended to replace stratospheric ozone-depleting substances described in the Significant New Alternative Policy (SNAP) program.

ADDITIONAL INFORMATION

For additional information, see Extinguishers and Extinguishing System Units (FWFZ) and Fire Protection Equipment (AAFP).

REQUIREMENTS

The basic standards used to investigate products in this category are ANSI/UL 711, "Rating and Fire Testing of Fire Extinguishers," and ANSI/UL 2129, "Halocarbon Clean Agent Fire Extinguishers."

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 "Clean Agent Fire Extinguisher - Classification ____."

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.

AMEREX CORP

EX5035

7595 GADSDEN HWY E PO BOX 81, TRUSSVILLE AL 35173

Stored-pressure-type Extinguishers

Model	Nominal Agent Capacity, lb	Min Use Temp, °F	Rating	Marine Type
Halotron I				
A384	1.4	-40	1-B:C	No
B385	2.5	-40	2-B:C	No
B386	5	-40	5-B:C	Yes
B394	5.5+	-40	5-B:C	No
397	11+	-40	1-A:10-B:C	Yes
398	15.5+	-40	2-A:10-B:C	Yes
673	65	-40	4-A:60-B-C	No
674, 675	150	-40	10-A:80-B-C	No

+ - FAA Approved in accordance with DOT/FAA/AR-01/37.

ANSUL INC

1 STANTON ST, MARINETTE WI 54143



Documents

EX5083

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EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS
(FWFZ)

Clean Agent Extinguishers (GAOM)—Continued

Stored-pressure-type Extinguishers

Model	Nominal Agent Capacity, lb	Min Use Temp, °F	Rating	Marine Type
FE-36				
FE02	2.5	-40	2-B:C	No
FE05+	4.75	-40	5-B:C	Yes
FE09+	9.5	-40	1-A:10-B:C	Yes
FE13+	13.25	-40	1-A:10-B:C	Yes
FE13NM	13.25	-40	2-A:10-B:C	No

+ - FAA Approved in accordance with DOT/FAA/AR-01/37.

BADGER FIRE PROTECTION EX5060
1016 CORPORATE PARK DR, MEBANE NC 27302

Stored-pressure-type Extinguishers

Model	Nominal Agent Capacity, lb	Min Use Temp, °F	Rating	Marine Type
Halotron I				
2.5HB-1, 2.5HB-2	2.5	-40	2-B:C	No
5HB-1, 5HB-2	5	-40	5-B:C	Yes
11HB-1	11	-40	1-A:10-B:C	Yes
15.5HB-1	15.5	-40	2-A:10-B:C	Yes

BUCKEYE FIRE EQUIPMENT CO EX5058
110 KINGS RD PO BOX 428, KINGS MOUNTAIN NC 28086

Stored-pressure-type Extinguishers

Model	Nominal Agent Capacity, lb	Min Use Temp, °F	Rating	Marine Type
Halotron I				
2.5 FSA, 2.5 HSA	2.5	-40	2-B:C	No
5 FSA, 5 FSB, 5 HSA	5	-40	5-B:C	Yes
11 SA, 11 SB	11	-40	1-A:10-B:C	Yes
15 SA, 15 SB	15	-40	2-A:10-B:C	Yes
W-65	65	-40	4-A:40-B:C	No
W-150	150	-40	10-A:80-B:C	No

H3R INC, DBA H3R PERFORMANCE EX9183
483 MAGNOLIA AVE, LARKSPUR CA 94939

Model	Nominal Agent Capacity, lb	Min Use Temp, °F	Rating	Marine Type
Halotron I				
HG100	1.4	-40	1-B:C	No
HG250	2.5	-40	2-B:C	No

KIDDE TECHNOLOGIES INC, DBA KIDDE AEROSPACE & DEFENSE EX15347
& FENWAL SAFETY SYSTEMS 4200 AIRPORT DR, WILSON NC 27896

Stored-pressure-type Extinguishers

Model	Nominal Agent Capacity, lb	Min Use Temp, °F	Rating	Marine Type
PRO5-FE36				
PRO5-FE36	5.0	-40	5-B:C	Yes

NASA FIRETECH INC EX15287
C-2, BALAJI COMPLEX NEAR BANK OF INDIA NEHRU PARK, VASTRAPUR, AHMEDABAD, GJ 380015 INDIA

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ) 31

Clean Agent Extinguishers (GAOM)—Continued

Stored-pressure-type Extinguishers

Model	Nominal Agent Capacity, lb	Min Use Temp, °F	Rating	Marine Type
NS-123				
NASA-227MAR	5.0 (2.27)	-40	2-B:C	No

NATIONAL FIRE FIGHTING MFG FZ CO EX16009
PO BOX 17014 JEBEL ALI FREE ZONE, DUBAI UNITED ARAB EMIRATES

Stored-pressure-type Extinguishers

Model	Nominal Agent Capacity, lb	Min Use Temp, °F	Rating	Marine Type
N 05L FSA, N 05L FSB, N 05L HSA	5	-40	5-B:C	Yes
N 11L SA, N 11L SB	11	-40	1-A:10-B:C	Yes
N 15L SA, N 15L SB	15	-40	2-A:10-B:C	Yes

SEA-FIRE MARINE PRODUCTS, DIV OF METALCRAFT INC EX5131
9331A PHILADELPHIA RD, BALTIMORE MD 21237

Stored-pressure-type Extinguishers

Model	Nominal Agent Capacity, lb	Min Use Temp, °F	Rating	Marine Type
FM-200				
C20	2.75	-40	2-B:C	No
FM02T	2.75	-40	2-B:C	No
C50	5.75+	-40	5-B:C	Yes
FM05T	5.75+	-40	5-B:C	Yes
C100	10.75	-40	5-B:C	Yes
FM10T	10.75	-40	5-B:C	Yes

+ FAA Approved in accordance with DOT/FAA/AR-01/37.

SHAH BHOGILAL JETHALAL & BROS EX16010
NR MADHURAM CINEMA GHEEKANTA RD, AHMEDABAD, GJ 380001 INDIA

Stored-pressure-type Extinguishers

Model	Nominal Agent Capacity, lb	Min Use Temp, °F	Rating	Marine Type
AAAG-227MAR	5.0 (2.27)	-40	2-B:C	No

WALTER KIDDE PORTABLE EQUIPMENT INC, DBA KIDDE SAFETY EX4924
1394 S 3RD ST, MEBANE NC 27302

Stored-pressure-type Extinguishers

Model	Nominal Agent Capacity, lb	Min Use Temp, °F	Rating	Marine Type
Halotron I				
ProPlus 2.5HM	2.5	-40	2-B:C	No
ProPlus 5HM	5	-40	5-B:C	Yes
ProPlus 11HM	11	-40	1-A:10-B:C	Yes
ProPlus 15.5HM	15.5	-40	2-A:10-B:C	Yes

CLEAN AGENT EXTINGUISHING SYSTEM UNITS (GAQF)

USE AND INSTALLATION

This category covers clean agent extinguishing system units, which are assembled in a system to discharge an extinguishing agent through fixed piping and nozzles for the extinguishment of fires. These units include actuating assemblies designed for automatic and/or manual operation, container assemblies for storing the extinguishing agent, discharge assemblies, manifold check valves, selector valves, discharge nozzles and other miscellaneous devices.

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

32

Clean Agent Extinguishing System Units (GAQF)—Continued

This category also covers clean agent extinguishing system unit assemblies comprised of a single enclosure that houses 1) electronic control and signaling equipment and 2) a clean agent extinguishing system unit, connected and assembled in the enclosure and intended for connection to an electrical power connection, clean agent system piping, and heat- or smoke-detection devices.

Clean agent extinguishing systems are intended to be designed, installed and maintained in accordance with ANSI/NFPA 2001, "Clean Agent Fire Extinguishing Systems," and the manufacturer's installation, operation and maintenance manual. These units are designed for total-flooding applications unless otherwise indicated in the individual Listings. For total-flooding applications, the hazard is surrounded by a fixed enclosure that enables the required concentration to be achieved and maintained for the required period of time, ensuring effective extinguishment of fire in combustible materials.

The total-flooding design concentrations for surface-type Class A and Class B fires are specified in the individual manufacturer's design and/or installation, operation and maintenance manual referenced in the individual Listings.

Fires involving densely-packed fibrous materials, such as baled cotton, jute, pressed fiberboard or the like, are special hazards and should be given specific consideration. Extinguishment of materials of this type may require substantially higher concentrations.

For information regarding safeguards for personnel, products of decomposition, and exposure to the agent, refer to ANSI/NFPA 2001.

Authorities Having Jurisdiction should be consulted before installation.

ADDITIONAL INFORMATION

For additional information, see Extinguishers and Extinguishing System Units (FWFZ) and Fire Protection Equipment (AAFP).

REQUIREMENTS

The basic standard used to investigate clean agent extinguishing system units in this category is UL 2166, "Halocarbon Clean Agent Extinguishing System Units," or UL 2127, "Inert Gas Clean Agent Extinguishing System Units."

The basic standards used to investigate clean agent extinguishing system unit assemblies in this category are UL 2166, or UL 2127 and ANSI/UL 864, "Control Units and Accessories for Fire Alarm Systems."

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 "Clean Agent Extinguishing System Unit" or "Clean Agent Extinguishing System Unit Assembly."

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.

AIR FIRE SPA

EX9146

VIA TENUTA DELLA MISTICA 33/37 00155, ROME ITALY

ENGINEERED UNITS, Models SH70025410, SH70025409, SH70025408, SH70025407, SH70025406, SH70025412, SH70025405, SH70025404, SH70025403, Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacities of 5, 13, 26, 40, 67, 67.5, 75, 100 and 120 L of NAF S 125 (HFC-125 with limonene additive, 0.15% by weight) Clean Agent, respectively. The units are super pressurized to 42 bar with operating temperatures of -18 °C to +50 °C. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

Models SH70025413, SH70025414, SH70025415, NAF S 125 (HFC-125 with limonene additive, 0.15% by weight) Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacities of 142, 175 and 240 L of NAF S 125 (HFC-125 with limonene additive, 0.15% by weight) Clean Agent, respectively. The units are super pressurized to 25 bar with operating temperatures of -18 °C to +50 °C. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

These systems are intended to be designed and installed in accordance with the Listee's Design Manual ARDM0405, dated 07-2010; Installation, Maintenance and User's Manual ARIM0705, dated 07-2010. Copies are available from the Listee. The design program NAF S 125 Flow Calculation Program Version AIR FIRE 3.72 is accessed through Safety Hi-Tech, User's Manual AIR FIRE Flowcalc-NAF S 125.

AMEREX CORP

EX9137

7595 GADSDEN HWY E PO BOX 81, TRUSSVILLE AL 35173

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

Clean Agent Extinguishing System Units (GAQF)—Continued

PRE-ENGINEERED UNITS Model CPS HFC-227ea Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacity of 44 and 130 lbs of HFC-227ea Clean Agent, respectively. The units are super-pressurized to 360 psig with operating temperatures of +32°F to +130°F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and C fires occurring within an enclosure.

A description of these extinguishing system units, and the design and installation limitations are contained in the Listee's Model CPS Pre-Engineered HFC-227ea Clean Agent Fire Suppression System Design, Installation, Maintenance, and Recharge Manual, P/N 17029, dated January 8, 2007. Copies are available from the above Listee.

PRE-ENGINEERED UNITS Model(s) CPS-1230, Novec 1230 clean agent extinguishing system units, stored pressure type, having nominal charging capacities of 40, 75 and 130 lbs. of Novec 1230 clean agent. The units are pressurized to 360 psig at 70°F with operating temperatures of 32°F to 130°F. The units are intended to be designed for total flooding protection against Class A surface burning, Class B flammable liquid and C fires occurring within an enclosure.

A description of these extinguishing system units, and the design and installation limitations are contained in the Listee's Model CPS Pre-Engineered Novec 1230 clean agent Fire Suppression System Design, Installation, Maintenance, and Recharge Manual, P/N 19134, dated March 1, 2010 and revised April 2010. Copies are available from the above Listee.

ANSUL INC

EX4510

1 STANTON ST, MARINETTE WI 54143

ENGINEERED UNITS

IG-541 (Inergen) Clean Agent Extinguishing System Units, stored pressure type, having nominal storage capacities of 200, 250, 350, 425, 435 cu ft of IG-541 (Inergen). The units are pressurized to 2175 psig (150 Bar) at 70 F with operating temperatures of 32F to 130F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual P/N 416655 issued November 1, 2000, revised July 12, 2011, Bulletin 5427 dated October 29, 2008 and Bulletin 5408a dated February 23, 2009. These installations require the use of the Listee's flow calculation software 150 Bar Inergen Designer Version 2.1.2 for engineered or Inercalc Version 1.3.0 for balanced engineered. Copies are available from the above Listee.

IG-541 (Inergen) Clean Agent Extinguishing System Units, stored pressure type, having nominal storage capacities of 575 cu ft of IG-541 (Inergen). The units are pressurized to 2900 psig (200 Bar) at 70 F with operating temperatures of 32F to 130F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual P/N 430149 issued December 1, 2001, revised July 12, 2011, Bulletin 5427 dated October 29, 2008 and Bulletin 5408a dated February 23, 2009. These installations require the use of the Listee's flow calculation software 200 Bar Inergen Designer Version 5.1.3 for engineered. Copies are available from the above Listee.

Sapphire ® Clean Agent Extinguishing System Units containing 3M™ Novec™ 1230 Fire Protection Fluid (FK-5-1-12), Models 570635, 570633, 570634, 570638, 570639, 570640, 570641 and 570586, stored pressure type, having nominal storage capacities of 20, 50, 90, 140, 280, 390, 450 and 850 lb of Novec™ 1230 Fluid (FK-5-1-12), respectively. The units are pressurized to 360 psig (24.8 bar) at 70F with operating temperatures of 32F to 130F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure. A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual P/N 570590-4 issued September 1, 2010 (Rev 3), and Main/Reserve Actuation Isolator Installation Manual Supplement p/n 437276 dated March 31, 2010. These installations require the use of the Listee's flow calculation software ANSL 3.61b. Copies are available from the above Listee.

Sapphire ® Clean Agent Extinguishing System Units containing 3M™ Novec™ 1230 Fire Protection Fluid (FK-5-1-12), Models 570839 and 570840 stored pressure type, utilizing seamless cylinders having nominal storage capacities of 210 and 320 lb of Novec™ 1230 Fluid (FK-5-1-12), respectively. The units are pressurized to 360 psig (24.8 bar) at 70F with operating temperatures of 32F to 130F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure. A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual P/N 570805-0 issued February 2011 and the Sapphire Engineered system Flow Calculation Software Version AIR FIRE 3.72. Copies are available from the above Listee.

PRE-ENGINEERED UNITS



Documents

Document Sharing Hub

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

Clean Agent Extinguishing System Units (GAQF)—Continued

Sapphire® Clean Agent Extinguishing System Units containing 3M™ Novec™ 1230 Fire Protection Fluid (FK-5-1-12), Models 570636 and 570637, stored pressure type, having nominal storage capacities of 40 and 80 lb of Novec™ 1230 Fluid (FK-5-1-12), respectively. The units are pressurized to 360 psig (24.8 bar) at 70F with operating temperatures of 32F to 130F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure. A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual P/N 570527 issued May 15, 2003, revised September 1, 2010. Copies are available from the above Listee.

CHEMETRON FIRE SYSTEMS

EX4655

3RD FL 4801 SOUTHWICK DR, MATTESON IL 60443

ENGINEERED UNITS Models 10480992, 10480980, 10480991, 10480993, 10480994, 10480982, 10480985, 10480983, 10480986, 10480984, 10480987, HFC-227ea Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacities of 40, 55, 95, 150, 250, 400, 400, 550, 550 lb of HFC-227ea Clean Agent, respectively. The units are super-pressurized to 360 psig with operating temperatures of 32F to 130F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual P/N 30000030 dated October 15, 1995 and revised June 26, 2001. These installations require the use of the Listee's flow calculation software Agent Hydraulic Calculation Tool Ver. 10.X.X.X* dated January 1, 2008, Math engine: Conversion To Windows.dll ver.1.1.0.0 (reference flow calculation manual P/N 30000034 dated November 15, 1995 and revised January 1, 2005). Copies are available from the above Listee.

Models 10481454, 10481462, 10481455, 10481463, 10481456, 10481464, HFC-227ea Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacities of 600, 600, 750, 750, 1000, 1000 lb of HFC-227ea Clean Agent, respectively. The units are super-pressurized to 360 psig with operating temperatures of 32F to 130F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual P/N 30000049 dated July 1, 2000 and revised October 15, 2001. These installations require the use of the Listee's flow calculation software Agent Hydraulic Calculation Tool Ver. 10.X.X.X* dated January 1, 2008, Math engine: Conversion To Windows.dll ver.1.1.0.0 (reference flow calculation manual P/N 30000034 dated November 15, 1995 and revised January 1, 2005). Copies are available from the above Listee.

3M™ Novec™ 1230 Fire Protection Fluid (FK-5-1-12) Clean Agent Extinguishing System Units, Models 10481819, 10481820, 10481821, 10481822, 10481823, 10481824, 10481825, 10481826, 10481827, 10481828, 10481829, 10481830, 10481831, 10481832, 10481833, 10481834, and 10481835, stored pressure type, having nominal storage capacities of 40, 55, 95, 150, 150, 250, 250, 400, 400, 550, 550, 600, 600, 750, 750, 1000 and 1000 lb of Novec™ 1230 Fluid (FK-5-1-12), respectively. The units are pressurized to 360 psig (24.8 bar) at 70F with operating temperatures of 0F to 130F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual P/N 30000058, Revision A, dated October 5, 2004. These installations require the use of the Listee's flow calculation software Agent Hydraulic Calculation Tool Ver. 10.X.X.X* dated January 1, 2008, Math engine: CalculateNovec.dll ver.1.1.0.0-R2 (reference flow calculation manual P/N 30000066, Revision A, dated October 5, 2004). Copies are available from the above Listee.

* Numeric version code, where X may be 0-99.

CHEMORI L L C

EX16021

108 W 13TH ST, WILMINGTON DE 19801

ENGINEERED UNITS, Models CR90035-E, -90070-E, -90150-E, -90250-E, -90375-E, -90560-E and -91200-E HFC-227ea Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacities of 35, 70, 150, 250, 375, 560 and 1200 lb HFC-227ea Clean Agent, respectively. These units are super-pressurized to 360 psig with operating temperatures of 32 F to 130 F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

These above system units are intended to be designed and installed in accordance with the Listee's Design and Installation Operation and Maintenance Manual, P/N CR-90225-D dated September 13, 2010. These installations require the use of the Listee's Flow Calculation Software, Version OCI3.10 (Reference Software User's Manual dated September 2010). Copies of the software and manuals may be obtained from the above Listee.

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ) 33

Clean Agent Extinguishing System Units (GAQF)—Continued

PRE-ENGINEERED UNITS, Models CR-3, -6, -12, -18 Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacities of 3, 6, 12, 18 lb of HFC-227ea Clean Agent, respectively. These units are super-pressurized to 240 psig with operating temperatures of 32 F to 130 F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

Models OCI-35, -70, -140, -240, -360, -520 Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacities of 70, 140, 240, 360, and 520 lb of HFC-227ea Clean Agent, respectively. These units are super-pressurized to 360 psig with operating temperatures of 32 F to 130 F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

These system units are intended to be designed and installed in accordance with the Listee's Design and Installation Operation and Maintenance Manual, P/N CR-LP-SYS1 dated September 13, 2010.

EUROTECH FIRE PROTECTION LTD

EX15839

11 LAKESIDE BUSINESS PARK, SANDHURST, BERKSHIRE

GU47 9DN UNITED KINGDOM

ENGINEERED UNITS

Eurotech FM-200 Models E7768-101, E7768-102, E7768-103, E7768-104, E7768-105, E7768-106, E7768-107, E7768-108, E7768-109, E7768-110, E7768-111, E7768-112, and E7768-113, GX-20 Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacities of 5, 8, 16, 28, 51, 81, 81, 142, 142, 243, 243, 368 and 368 liters of FM-200 Clean Agent, respectively. The units are super pressurized to 25 bar with operating temperatures of -0 C to +54 C. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

Eurotech FM-200 (EU Compliant) Models E7766-101, E7766-102, E7766-103, E7766-104, E7766-105, E7766-106, E7766-107, E7766-108, E7766-109, E7766-110, E7766-111, E7766-112, and E7766-113, GX-20 Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacities of 5, 8, 16, 28, 51, 81, 81, 142, 142, 243, 243, 368 and 368 liters of FM-200 Clean Agent, respectively. The units are super pressurized to 25 bar with operating temperatures of -0 C to +54 C. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

These systems are intended to be designed and installed in accordance with the Listee's Design, Installation, Operation and Maintenance Manual, P/N E9813-003, Issue A, dated October 2010. These installations require the use of the Listee's Flow Calculation Software, Version GX3.03 (reference Software User's Manual P/N D3882-030). Copies are available from the Listee.

Eurotech Novec™ 1230™ Engineered Series, Models E7767-001, E7767-002, E7767-003, E7767-004, E7767-005, E7767-006, E7767-007, E7767-008, E7767-009, E7767-010, E7767-011, E7767-012, E7767-013, and E7767-014 Clean Agent Extinguishing System Units, stored pressure type having nominal charging capacities of 10, 20, 40, 70, 125, 125, 200, 200, 350, 350, 600, 600, 900, 900 lb of Novec™ 1230™ Clean Agent, respectively. The units are super-pressurized to 360 psig with operating temperatures of 0°F to 130°F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

Eurotech Novec™ 1230™ Engineered Series (EU Compliant), Models E7765-001, E7765-002, E7765-003, E7765-004, E7765-005, E7765-006, E7765-007, E7765-008, E7765-009, E7765-010, E7765-011, E7765-012, E7765-013, and E7765-014 Clean Agent Extinguishing System Units, stored pressure type having nominal charging capacities of 10 (4.5), 20 (9.1), 40 (18.1), 70 (31.7), 125 (56.7), 125 (56.7), 200 (90.7), 200 (90.7), 350 (158.8), 350 (158.8), 600 (272.1), 600 (272.1), 900 (408.2), 900 (408.2) lb (kg) of Novec™ 1230™ Clean Agent, respectively. The units are super-pressurized to 360 psig with operating temperatures of 0°F to 130°F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

A description of these extinguishing system units and the design and installation limitations, are contained in the Listee's Design, Installation, Operation and Maintenance Manual, P/N 06-237127-001, dated November 2010. These installations require the use of the Listee's Design and Flow Calculation Software, Version 1.0.X* (reference the Users Manual for Eurotech Novec 1230 Design and Flow Calculation Software, P/N 06-237128-001, dated November 2010). Copies are available from the above Listee.

EVERSAFE EXTINGUISHER SDN BHD

EX15573

LOT 878 JALAN SUBANG 9 TAMAN PERINDUSTRIAN SUBANG

DARUL EHSAN 47500, SUBANG JAYA, SELANGOR, MALAYSIA

ENGINEERED UNITS, Models SH70027410, SH70027407, SH70027407, SH70027406, SH70027412, SH70027405, SH70027404, SH70027403, Clean Agent Extinguishing System Units, stored pressure

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

34

Clean Agent Extinguishing System Units (GAQF)—Continued

types, having nominal capacities of 5, 13, 26, 40, 67, 67.5, 75, 100 and 120L. The units are super pressurized to 42 bar with operating temperatures of 0°C to +50°C. These units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

Models SH70027413, SH70027414, SH70027415, Clean Agent Extinguishing System Units, stored pressure type, having nominal capacities of 142, 175 and 240 liters. These units are super pressurized to 25 bar with operating temperature of 0°C to +50°C. These units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

These systems are intended to be designed and installed in accordance with the NAF S 227 Engineered Systems Design Manual ESDMS227EN, dated 07-2010; Installation, Maintenance and User Manual for NAF S 227 Fire Extinguishing Systems ESIMS227EN, dated 07-2010. The design program NAF S 227 Flow Calculation Software Version EVERSAFE 3.03 CD is accessed through Safety Hi-Tech, User's Manual EVERSAFE Flowcalc-227.

FIKE CORP

EX4623

704 S 10TH ST PO BOX 610, BLUE SPRINGS MO 64015

PRE-ENGINEERED UNITS Models 70-098(T), -089(T), -152(T), -153(T), -041, -077, -154(T), -155(T), -156(T), -157(T), HFC-227ea Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacities of 20, 35, 60, 100, 125, 215, 375, 650, and 1000 lbs of HFC-227ea Clean Agent, respectively. The units are super-pressurized to 360 psig with operating temperatures of 32 F to 130 F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

A description of these extinguishing system units, and the design and installation limitations are contained in the Listee's installation manual P/N 06-215 (Rev. G) dated January 2010; liquid level manual P/N 06-107 (Rev 2) dated October 2008. Copies are available from the Listee.

ENGINEERED UNITS, Models 70-098(T), -089(T), -152(T), -153(T), -041, -077, -154(T), -155(T), -156(T), -157(T), HFC-227ea Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacities of 20, 35, 60, 100, 125, 215, 375, 650, and 1000lb of HFC-227ea Clean Agent, respectively. The units are super pressurized to 360 psig with operating temperatures of +32 F to +130 F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

These systems are intended to be designed and installed in accordance with the Listee's design, installation and maintenance manual, P/N 06-215 (Rev. G), dated January 2010; liquid level manual P/N 06-107 (Rev 2) dated October 2008. Copies are available from the Listee. Design program is accessed through Fike Protection Systems HFC-227ea Flow Program, Version FIK 3.02 floppy disc and the flow program User's Manual P/N 06-208, dated March 2004.

ENGINEERED UNITS, ECARO-25 Models 70-098(T), -089(T), -152(T), -153(T), -041, -077, -154(T), -155(T), -156(T), -157(T), HFC-125 Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacities of 20, 35, 60, 100, 125, 215, 375, 650 and 1000lb of HFC-125 Clean Agent, respectively. The units are super pressurized to 360 psig with operating temperatures of +32 F to +120 F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

These systems are intended to be designed and installed in accordance with the Listee's design, installation and maintenance manual, P/N 06-285 Rev. D, dated January 2010; liquid level manual P/N 06-289 (Rev 1) dated October 2008. Copies are available from the Listee. Design program is accessed through ECARO-25 Flow Program, Version 3.00a.XXXX floppy disc and the flow program User's Manual P/N 06-263, Rev. C, dated August 27, 2003.

ENGINEERED UNITS, ProInert Fire Extinguishing System, IG-55 Inert Gas System Units having nominal agent charging capacity of 572.3 cubic feet. The units are pressurized to 2900 psi (200bar) with operating temperatures of -4°F to +120°F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

These systems are intended to be designed and installed in accordance with the Listee's Design, Installation and Maintenance Manual for ProInert System - P/N 06-371, (Rev. 6) dated September 2011. Copies are available from the Listee. Design program is accessed through ProInert Flow Calculation Software Version 1.1.0.0.

ENGINEERED and PRE-ENGINEERED UNITS, ECARO-25 Models 70-263, -264, -265, -266, -267, -268, -269, -270, -271, -272 and -273, HFC-125 clean agent extinguishing system units incorporating DOT/TC containers, stored pressure type, having nominal charging capacities of 5, 10, 20, 35, 60, 100, 150, 215, 375, 650, and 1000 lb of HFC-125 clean agent, respectively. The units are super pressurized to 360 psig with operating temperatures of +32 to +120°F. The units are designed for total flooding protection against Class A surface

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

Clean Agent Extinguishing System Units (GAQF)—Continued

burning, Class B flammable liquid and Class C fires occurring within an enclosure.

These systems are intended to be designed and installed in accordance with the Listee's design, installation and maintenance manual, Part No. 06-431 (Rev. 3), dated November 2011; liquid level manual, Part No. 06-548 (Rev. 3) dated November 2011, and Fike Protection Systems ECARO-25 Flow Program, Version 4.00.XXXX.

ENGINEERED and PRE-ENGINEERED UNITS, Models 70-263, -264, -265, -266, -267, -268, -269, -270, -271, -272 and -273, HFC-227ea clean agent extinguishing system units incorporating DOT/TC containers, stored pressure type, having nominal charging capacities of 5, 10, 20, 35, 60, 100, 150, 215, 375, 650, and 1000 lb of HFC-227ea clean agent, respectively. The units are super pressurized to 360 psig with operating temperatures of +32 to +130°F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

These systems are intended to be designed and installed in accordance with the Listee's design, installation and maintenance manual, Part No. 06-433 (Rev. 4), dated November 2011; liquid level manual, Part No. 06-549 (Rev. 4) dated November 2011, and Fike Protection Systems HFC-227ea Flow Program, Version FIK3.02.

ENGINEERED UNITS, ECARO-25 Models 70-278, -255, -256 and -257, HFC-125 clean agent extinguishing system units incorporating TPED cylinders, stored pressure type, having nominal charging capacities of 26, 45, 83 and 150 liters of HFC-125 clean agent, respectively. The units are super pressurized to 360 psig with operating temperatures of +32 to +120°F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

These systems are intended to be designed and installed in accordance with the Listee's design, installation and maintenance manual, Part No. 06-541 (Rev. 0), dated May 2010; and Fike Protection Systems ECARO-25 Flow Program, Version 4.00.XXXX.

ENGINEERED UNITS, Models 70-278, -255, -256, and -257, HFC-227ea clean agent extinguishing system units incorporating TPED cylinders, stored pressure type, having nominal charging capacities of 26, 45, 83 and 150 liters of HFC-227ea clean agent, respectively. The units are super pressurized to 360 psig with operating temperatures of +32 to +130°F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

These systems are intended to be designed and installed in accordance with the Listee's design, installation and maintenance manual, Part No. 06-542 (Rev. 0), dated March 2010; and Fike Protection Systems HFC-227ea Flow Program, Version FIK3.02.

XXXX = 0000 to 9999, number increases by 1 with every production release. Model numbers indicated with the suffix "T" may be provided with threaded or welded cylinder to valve connections, while model numbers without the suffix "T" are only provided with welded connections.

FIRE EATER

EX15566

VOELUNDSVEJ 17 3400, HILLEROD DENMARK

ENGINEERED UNIT, IG-541 (Inergen) Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacities of 50 or 80 liters of IG-541 (Inergen), respectively. The units are pressurized to 200 (2900 psig) or 300 bar (4350 psig) with operating temperatures of 32°F (0°C) to 150°F (65°C). The units are designed for total-flooding protection against Class A surface burning, Class B flammable liquid, and Class C fires occurring within an enclosure.

A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual, Ci UL Manual, dated October 21, 2011. These installations require the use of the Listee's flow calculation software, IMT V2.0.37. Copies are available from the above Listee.

AGENT STORAGE CONTAINER ASSEMBLY

Weight of Agent (lbs)	Part No.
Cylinder and valve assembly, 50 Liter, 200 bar- 32.8 lbs	200610-60
Cylinder and valve assembly, 80 Liter, 200 bar- 53.4 lbs	200616-60
Cylinder and valve assembly, 50 Liter, 300 bar- 45.5 lbs	200615-60
Cylinder and valve assembly, 80 Liter, 300 bar- 72.8 lbs	200624-60

FIRE FLUID TECHNOLOGIES INC

EX6175

14820 W 107TH ST, LENEXA KS 66215

PRE-ENGINEERED UNITS 3M™ Novex™ 1230 Fire Protection Fluid (dodecafluoro-2-methylpentan-3-one) Extinguishing System Units, stored pressure type, having nominal charging capacities of 38, 65, 130, 277 and 395 lb (17.2, 29.5, 59.0, 125.6 and 179.2 kg) Novex™ 1230 Fire Protection Fluid

**EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS
(FWFZ)**
Clean Agent Extinguishing System Units (GAQF)—Continued

units are super-pressurized to 25 bar (363 psig) with operating temperatures of 0 F to 130 F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

A description of these extinguishing system units, and the design and installation limitations are contained in the Listee's installation manual dated October 17, 2002 (p/n FFT 1230). Copies are available from the above Listee.

AGENT STORAGE CONTAINER ASSEMBLY

Weight of Agent (Lbs)	Part No.
18-38	CV 14035
30-65	CV 14250
60-130	CV 14130
130-277	CV 14021
158-395	CV 14310

ENGINEERED UNITS 3M™ Novec™ 1230 Fire Protection Fluid (dodecafluoro-2-methylpentan-3-one) Extinguishing System Units, stored pressure type, having nominal charging capacities of 38, 65, 130, 277, 395 and 895 lb (17.2, 29.5, 59.1, 125.9, 179.5 and 406.8 kg) of Novec™ 1230 Fluid, respectively. The units are pressurized to 25 bar (360 psig) with operating temperatures of 0 F to 130 F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

A description of these extinguishing system units, and the design and installation limitations are contained in the Listee's installation manual P/N FFT 1230 360 Eng issued July 2011 and Sevo VDS software Novec -Calculation program Version 7.2. Copies are available from the above Listee.

AGENT STORAGE CONTAINER ASSEMBLY

Weight of Agent (Lbs)	Part No.
15-38	CV 140077-360
26-65	CV 140078-360
52-130	CV 140068-360
111-277	CV 140021-360
157-394	CV 140067-360
366-854	CV 140106-360

FIREATER
EX15063

**BURLINGHAM HOUSE HEWETT RD GREAT YARMOUTH,
NORFOLK NR31 0NN UNITED KINGDOM**

ENGINEERED UNITS

Engineered Sapphire Models 16373, 16374, 16375, 16376, 16377, 16378, 16379 and 15329 Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacities of 20, 50, 90, 140, 280, 390, 450 and 850 lb (9.1, 22.7, 40.8, 63.5, 127, 177, 204 and 386 kg) of 3MTM Novec™ 1230 Fire Protection Fluid (FK-5-1-12) Clean Agent, respectively. The units are super-pressurized to 360 psig (25 bar) with operating temperatures of 32°F (0°C) to 130°F (55°C). The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

These system units are intended to be designed and installed in accordance with the Listee's Engineered System Installation Manual (p/n 14A-11F) dated 2010-08, and the Novec 1230 Engineered System Flow Calculation Software Version FIRE3.03a.

3M™ Novec™ 1230 Fire Protection Fluid (FK-5-1-12) Clean Agent Extinguishing System Units, utilizing DOT rated cylinders, Models 303.207.010, 303.207.001, 303.207.002, 303.207.003, 303.207.004, 303.207.005, 303.207.006, 303.207.007 and 303.207.008, stored pressure type, having nominal storage capacities of 11, 21, 42, 84, 137, 280, 388, 459 and 851 lb (5.4, 9.6, 19.2, 38.4, 62.4, 127.2, 176.4, 208 and 386 kg) of Novec™ 1230 Fluid (FK-5-1-12), respectively. 3M™ Novec™ 1230 Fire Protection Fluid (FK-5-1-12) Clean Agent Extinguishing System Units utilizing TPED rated cylinders, Models 303.207.020, 303.207.021, 303.207.022, 303.207.023, 303.207.024, and 303.207.025, stored pressure type, having nominal storage capacities of 21, 42, 84, 137, 280, and 388 lb (9.6, 19.2, 38.4, 62.4, 127.2, and 176.4 kg) of Novec™ 1230 Fluid (FK-5-1-12), respectively. The units are pressurized to 360 psig (24.8 bar) at 70°F with operating temperatures of 0°F to 130°F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure. A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual P/N 14A-11F 2010-03-11. These installations require the use of the Listee's Novec 1230 Engineered System Flow Calculation Software Version FIRE 3.61b. Copies are available from the above Listee.

Engineered FM-200® Models 303.205.026, 015, 016, 017, 030, 018, 031, 032, 019, 020, 021, and 022 Clean Agent Extinguishing System Units utilizing DOT rated cylinders, stored pressure type, having nominal charging capacities of 4.5, 8, 16, 32, 40, 52, 67, 80, 106, 147, 180, 343 L (9, 17, 35, 70,

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ) 35
Clean Agent Extinguishing System Units (GAQF)—Continued

88, 114, 148, 176, 233, 324, 396 and 756 lbs) of FM-200® Clean Agent, respectively.

Engineered FM-200® Models 303.205.045, 046, 047, 048, 049, and 050 Clean Agent Extinguishing System Units utilizing TPED rated cylinders, stored pressure type, having nominal charging capacities of 8, 16, 32, 52, 106, and 147 L (17, 35, 70, 114, 233, and 324 lbs) of FM-200® Clean Agent, respectively.

The units are super-pressurized to 25 bar (360 psig) with operating temperatures of 0°C to 54°C (32°F to 130°C). The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure. A description of these extinguishing system units and the design and installation limitations are contained in the Listee's Engineered System Installation, Recharge and Maintenance Manual, p/n 14A-07F dated 2010-03 and the FM-200® Engineered System Flow Calculation Software Version FIRE3.04b. Copies are available from the above Listee.

FIREFLEX SYSTEMS INC
EX15955

1935 LIONEL BERTRAND, BOISBRIAND, QC J7H 1N8 CANADA

PRE-ENGINEERED UNIT ASSEMBLY, FireFlex 1230 Clean Agent extinguishing system unit, comprised of a single enclosure that houses a Potter Electronic releasing control panel and a SEVO Clean Agent Extinguishing System Unit, utilizing 3MTM Novec™ 1230 Fire Protection Fluid (FK-5-1-12) in agent-charged capacities from 18-273 kg (40-601 lbs). The units are designed for total-flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual FM-0860-0-5B, dated June 2009. Copies are available from the above Listee.

FIRETRACE USA L L C
EX15893

SUITE B 15690 N 83RD WAY, SCOTTSDALE AZ 85260

ENGINEERED UNITS, Models FTF00035, -00070, -00150, -00250, -00375, -00560 and -01200 HFC-227ea Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacities of 35, 70, 150, 250, 375, 560 and 1200 lb. HFC-227ea Clean Agent, respectively. These units are super-pressurized to 360 psig with operating temperatures of 32 F to 130 F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

These above system units are intended to be designed and installed in accordance with the Listee's Design and Installation Operation and Maintenance Manual, P/N FTF-000001 dated January 3, 2011. These installations require the use of the Listee's Flow Calculation Software, Version FTF 3.10 (Reference Software User's Manual dated September 2010). Copies of the software and manuals may be obtained from the above Listee.

HONEYWELL MIDDLE EAST FZE
EX15697

OFFICE 199, LOB 8 JEBEL ALI FREE ZONE PO BOX 18532,

DUBAI UNITED ARAB EMIRATES

ENGINEERED UNITS, Models 70025434, 70025433, 70025439, 70025437, 70025417, 70025429, 70025420 and 70025430, HFC-227ea Clean Agent Extinguishing System Units, stored pressure type, having nominal capacities of 5, 13, 27, 40, 67, 75, 100, and 120 liters. The units are super pressurized to either 24.8 or 41.4 bar with operating temperature of 0°C to + 50°C.

Models 70025431, 78025000, 70025432, 77025000, 78025001 and 79025000, HFC-227ea Clean Agent Extinguishing System Units, stored pressure type, having nominal capacities of 142, 142, 175, 175, 240 and 240 liters. The units are super pressurized to 24.8 bar with operating temperature of 0°C to + 50°C.

The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure. A description of these extinguishing system units and the design and installation limitations are contained in the Listee's Installation, Maintenance and User's Manual MU-27-03-IN, Rev. 1 dated June 2008 and Design Manual MD-27-03-IN, Rev. 1 dated May 2008. These installations require the use of the Listee's flow calculation software LPG FM-200 Flow-Calc, Version LPG3.51. Copies are available from the above Listee.

PRE-ENGINEERED UNITS, Models 71103000, 72103000, 72103001 and 74103000, HFC-227ea Clean Agent Extinguishing System Units, stored pressure type, having nominal capacities of 75, 75, 120 and 120 liters. These units are super pressurized to 42 bar with operating temperature of 0°C to + 50°C.

Models 72103002, 74103001, 72103003 and 74103002, HFC-227ea Clean Agent Extinguishing System Units, stored pressure type, having nominal capacities of 142, 142, 240 and 240 liters. These units are super pressurized to 25 bar with operating temperature of 0°C to + 50°C.

The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure. A description of these extinguishing system units and the design and installation limitations are contained in the Listee's Installation, Maintenance and User's Manual MU-27-03-IN, Rev. 1 dated June 2008 and Design Manual MD-27-03-IN, Rev. 1 dated May 2008. These installations require the use of the Listee's flow calculation software LPG FM-200 Flow-Calc, Version LPG3.51. Copies are available from the above Listee.

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

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Clean Agent Extinguishing System Units (GAQF)—Continued

an enclosure. A description of these extinguishing system units and the design and installation limitations are contained in the Listee's Installation, Maintenance and User's Manual MU-27-03-IN, Rev. 1 dated June 2008 and Design Manual MD-27-03-IN, Rev. 1 dated May 2008. Copies are available from the above Listee.

JANUS FIRE SYSTEMS

EX15398

1102 RUPCICH D, CROWN POINT IN 46307

PRE-ENGINEERED UNIT, Models P-Sv 44, P-Sv 130, HFC-227ea Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacity of 44 and 130 lbs of HFC-227ea Clean Agent, respectively. The units are super-pressurized to 360 psig with operating temperatures of +32° F to +130° F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and C fires occurring within an enclosure.

A description of these extinguishing system units, and the design and installation limitations are contained in the Listee's Model P-Sv Series Pre-Engineered HFC-227ea Clean Agent Fire Suppression System Design, Installation, Maintenance, and Recharge Manual, Document No.DOC101, issued March 8, 2008, revised May 7, 2008. Copies are available from the above Listee.

ENGINEERED UNIT, Sv, Mv and Lv Series, FM-200 (HFC-227ea) Clean Agent Extinguishing System Units, Models 18583, 18584, 18585, 18525, 18526, 18527, 18528 and 18529, stored pressure type, having nominal charging capacities of 40, 80, 130, 250, 420, 600, 900 and 1000 lb of Clean Agent, respectively. The units are super-pressurized to 360 psig with operating temperatures of 32°F to 130°F. The units are designed for total-flooding protection against Class A surface burning, Class B flammable liquid, and Class C fires occurring within an enclosure.

These systems are intended to be designed and installed in accordance with the Listee's design, installation and maintenance manual, Doc. No. 102 (Rev. C-1), issued Feb. 1 2009, revised March 28, 2011; software manual, Doc. No. 106 (Rev. A) dated March 15, 2010, and Janus Design Suite Flow Program, Version 1.X.Y.Z.

ENGINEERED UNIT, Sv, Mv and Lv Series, Novac 1230 Clean Agent Extinguishing System Units, Models 20503, 20504, 20505, 20506, 20507, 20508, 20509 and 20510, stored pressure type, having nominal charging capacities of 40, 80, 130, 250, 420, 600, 900 and 1000 lb of Clean Agent, respectively. The units are super-pressurized to 360 psig with operating temperatures of 32°F to 130°F. The units are designed for total-flooding protection against Class A surface burning, Class B flammable liquid, and Class C fires occurring within an enclosure.

These systems are intended to be designed and installed in accordance with the Listee's design, installation and maintenance manual, Doc. No. 108, issued June 21 2010; software manual, Doc. No. 173 dated June 14, 2010, and Janus Design Suite Flow Program, Version 1.X.Y.Z.

X = Year Code – 1-99

Y = Month Code – 1-12

Z = Date Code – 0-31

KIDDE FIRE PROTECTION

EX5054

THAME PARK RD, THAME, OXFORDSHIRE OX9 ERT UNITED KINGDOM

ENGINEERED UNITS Models E7763-101, E7763-102, E7763-103, E7763-104, E7763-105, E7763-106, E7763-107, E7763-108, E7763-109, E7763-110, E7763-111, E7763-112, and E7763-113, GX-20 Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacities of 5, 8, 16, 28, 51, 81, 142, 142, 243, 243, 368 and 368 liters of FM-200 Clean Agent, respectively. The units are super pressurized to 25 bar with operating temperatures of -0 C to +54 C. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

These systems are intended to be designed and installed in accordance with the Listee's Design, Installation, Operation and Maintenance Manual, P/N 59812-422, Issue C, dated November 2004. These installations require the use of the Listee's Flow Calculation Software, Version GX3.03 (reference Software User's Manual P/N E9832-014, Issue B, dated November 2004). Copies are available from the Listee.

KIDDE-FENWAL INC

EX4674

400 MAIN ST, ASHLAND MA 01721

PRE-ENGINEERED, Fenwal Modular Spherical, Pre-Engineered, Models 93-120250-001, 93-120251-001, 93-120253-001, 93-120351-001, 93-120353-001, 93-110201-001, 93-110202-001, 93-110203-001, 93-110204-001, 96-110204-001, HFC-227ea Clean Agent, designated as FM-200, Extinguishing System Units, stored pressure type, having nominal charging capacities of 15, 30, 30, 30, 44, 63, 101, 130 and 196 lbs., respectively. The units are super-pressurized with Nitrogen to 360 psig with an operating temperatures of 32 to 130°F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ)

Clean Agent Extinguishing System Units (GAQF)—Continued

A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual Part No. 93-FM200M-004 dated September, 2004.

Kidde ECS Series Pre-Engineered, Models 90-100010-001, 90-100011-001, 90-100020-001, 90-100021-001, 90-100040-001, 90-100041-001, 90-100070-001, 90-100071-001, 90-100121-001, 90-100125-001, 90-100200-101, 90-100201-101, 90-100201-001, 90-100200-001, 90-100350-001, 90-100351-001, 90-100600-001, 90-100601-001 HFC-227ea Clean Agent, designated as FM-200, Extinguishing System Units, stored pressure type, having nominal charging capacities of 10, 10, 20, 20, 40, 40, 70, 70, 125, 125, 200, 200, 200, 200, 350, 350, 500 and 500 lbs, respectively. The units are super-pressurized with Nitrogen to 360 psig with an operating temperatures of 32 to 130°F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual Part No. 90-FM200M-011 dated September, 2004.

Fenwal 9300 Modular Pre-Engineered, Models 93-100010-001, 93-100011-001, 93-100020-001, 93-100021-001, 93-100040-001, 93-100041-001, 93-100070-001, 93-100071-001, 93-100121-001, 93-100125-001, 93-100200-101, 93-100201-101, 93-100201-001, 93-100200-001, 93-100350-001, 93-100351-001, 93-100600-001, 93-100601-001 HFC-227ea Clean Agent, designated as FM-200, Extinguishing System Units, stored pressure type, having nominal charging capacities of 10, 10, 20, 20, 40, 40, 70, 70, 125, 125, 200, 200, 200, 200, 350, 350, 500 and 500 lbs, respectively. The units are super-pressurized with Nitrogen to 360 psig with an operating temperatures of 32 to 130°F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual Part No. 93-FM200M-013 dated September, 2004.

Kidde FE-13 Modular Pre-Engineered, Models 96-100065-001, 96-100112-001, HFC-23 Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacities of 65, 112 lb of HFC-23 Clean Agent, respectively. The units have an operating temperatures of -40 F to 130 F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure. A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual P/N 96-FE13MA-000 dated October 2002.

Kidde "In Cabinet" Models 90-410103-00X, 90-410105-00X, 90-410107-00X, 90-410110-00X, 90-410112-00X, 90-410115-00X, 90-410117-00X and 90-410120-00X, HFC-227ea Clean Agent, designated as FM-200, Extinguishing System Units, stored pressure type, having nominal charging capacities of 3, 5, 7, 10, 12, 15, 17 and 20 lbs., respectively. The units are super-pressurized with Nitrogen to 360 psig with an operating temperatures of 32 to 130°F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual Part No. 90-FM200M-040 dated September 2004.

Fenwal "In Cabinet" Models 93-410103-00X, 93-410105-00X, 93-410107-00X, 93-410110-00X, 93-410112-00X, 93-410115-00X, 93-410117-00X and 93-410120-00X, HFC-227ea Clean Agent, designated as FM-200, Extinguishing System Units, stored pressure type, having nominal charging capacities of 3, 5, 7, 10, 12, 15, 17 and 20 lbs., respectively. The units are super-pressurized with Nitrogen to 360 psig with an operating temperatures of 32 to 130°F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual Part No. 93-FM200M-040 dated September 2004.

ENGINEERED UNITS, Kidde ECS Series Engineered, Models 90-100010-001, 90-100020-001, 90-100040-001, 90-100070-001, 90-100121-001, 90-100125-001, 90-100200-001, 90-100201-001, 90-100350-001, 90-100351-001, 90-100600-001, 90-100601-001, 90-100600-100, 90-100601-100, 90-100900-001, 90-100901-001, HFC-227ea Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacities of 10, 20, 40, 70, 125, 125, 200, 200, 350, 350, 600, 600, 600, 600, 900, 900 lb of HFC-227ea Clean Agent, respectively. The units are super-pressurized to 360 psig with operating temperatures of 32 F to 130 F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual Part No. 90-FM200M-000 dated September, 2004. These installations require the use of the Listee's flow calculation software KID Version 3.03.

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS
(FWFZ)

Clean Agent Extinguishing System Units (GAQF)—Continued

lation manual P/N 90-FM200M-110 dated February 2004). Copies are available from the above Listee.

Fenwal 9300 Series Engineered, Models 93-100010-001, 93-100020-001, 93-100040-001, 93-100070-001, 93-100121-001, 93-100125-001, 93-100200-001, 93-100201-001, 93-100350-001, 93-100351-001, 93-100600-001, 93-100601-001, 93-100600-100, 93-100601-100, 93-100900-001, 93-100901-001, HFC-227ea Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacities of 10, 20, 40, 70, 125, 125, 200, 200, 350, 350, 600, 600, 600, 900, 900 lb of HFC-227ea Clean Agent, respectively. The units are super-pressurized to 360 psig with operating temperatures of 32 F to 130 F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual P/N 93-FM200M-007 dated September, 2004. These installations require the use of the Listee's flow calculation software FEN Version 3.03 (reference flow calculation manual P/N 93-FM200M-110 dated February 2004). Copies are available from the above Listee.

Fenwal Sphere and Bottom Discharge Engineered, Models 93-120250-001, 93-120251-001, 93-120253-001, 93-120351-001, 93-120353-001, 93-110201-001, 93-110202-001, 93-110203-001, 93-110204-001, 93-192041-001, 93-192041-002, 93-193040-001, 93-192040-002, 93-192042-001, 93-192042-002, HFC-227ea Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacities of 15, 30, 30, 30, 30, 44, 63, 101, 196, 350, 350, 560, 560, 850, 850 lb of HFC-227ea Clean Agent, respectively. The units are super-pressurized to 360 psig with operating temperatures of 32 F to 130 F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual P/N 93-FM200M-012 dated September, 2004. These installations require the use of the Listee's flow calculation software FEN Version 3.03 (reference flow calculation manual P/N 93-FM200M-110 dated February 2004). Copies are available from the above Listee.

Kidde ADS Series Engineered, Models 90-100225-001, 90-100221-001, 90-100395-001, 90-100391-001, 90-100675-001, 90-100671-001, 90-101010-001, 90-101011-001, HFC-227ea Clean Agent Extinguishing System Units, having nominal charging capacities of 225, 225, 395, 395, 675, 675, 1010, 1010 lb of HFC-227ea Clean Agent, respectively. The units have an operating temperatures of 32 F to 130 F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual P/N 90-FM200M-030 dated September, 2004, and Addendum 1 dated May 2004. These installations require the use of the Listee's flow calculation software ADS Version 3.02 (reference flow calculation manual P/N 90-FM200M-130 dated February 2004). Copies are available from the above Listee.

Fenwal Phoenix Series Engineered, Models 93-100225-001, 93-100221-001, 93-100395-001, 93-100391-001, 93-100675-001, 93-100671-001, 93-101010-001, 93-101011-001 HFC-227ea Clean Agent Extinguishing System Units, having nominal charging capacities of 225, 225, 395, 395 lb of HFC-227ea Clean Agent, respectively. The units have an operating temperatures of 32 F to 130 F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

The description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual P/N 93-FM200M-030 dated September, 2004, and Addendum 1 dated May 2004. These installations require the use of the Listee's flow calculation software PNK Version 3.02 (reference flow calculation manual P/N 93-FM200M-130 dated February 2004). Copies are available from the above Listee.

Kidde FE-13 Engineered, Models 96-100065-001, 96-100112-001, HFC-23 Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacities of 65, 112 lb of HFC-23 Clean Agent, respectively. The units have an operating temperatures of -40 F to 130 F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure. A description of these extinguishing system units and the design and installation limitations are contained in the Listee's installation manual P/N 96-FE13MA-002 dated October 2002. These installations require the use of the Listee's flow calculation software KID Version 3.50 (reference flow calculation manual P/N 96-FE13MA-013 dated March 2002). Copies are available from the above Listee.

Kidde Novec™ 1230™ Engineered Series, Models 45-100010-001, 45-100020-001, 45-100040-001, 45-100070-001, 45-100121-001, 45-100125-001, 45-100200-001, 45-100201-001, 45-100350-001, 45-100351-001, 45-100600-001,

EXTINGUISHERS AND EXTINGUISHING SYSTEM UNITS (FWFZ) 37

Clean Agent Extinguishing System Units (GAQF)—Continued

45-100601-001, 45-100900-001, 45-100901-001 Clean Agent Extinguishing System Units, stored pressure type having nominal charging capacities of 10, 20, 40, 70, 125, 125, 200, 200, 350, 350, 600, 600, 900, 900 lb of Novec™ 1230™ Clean Agent, respectively. The units are super-pressurized to 360 psig with operating temperatures of 0°F to 130°F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

A description of these extinguishing system units and the design and installation limitations, are contained in the Listee's Design, Installation, Operation and Maintenance Manual, P/N 45-N1230M-001, dated August 2005. These installations require the use of the Listee's Design and Flow Calculation Software, Version 1.0.X* (reference the Users Manual for Kidde Novec 1230 Design and Flow Calculation Software, P/N 45-N1230M-100, dated March 2006). Copies are available from the above Listee.

Kidde Novec™ 1230™ Engineered Series (EU Compliant), Models 45-990010-001, 45-990020-001, 45-990040-001, 45-990070-001, 45-990121-001, 45-990125-001, 45-990200-001, 45-990201-001, 45-990350-001, 45-990351-001, 45-990600-001, 45-990601-001, 45-990900-001, 45-990901-001 Clean Agent Extinguishing System Units, stored pressure type having nominal charging capacities of 10 (4.5), 20 (9.1), 40 (18.1), 70 (31.7), 125 (56.7), 125 (56.7), 200 (90.7), 200 (90.7), 350 (158.8), 350 (158.8), 600 (272.1), 600 (272.1), 900 (408.2), 900 (408.2) lb (kg) of Novec™ 1230™ Clean Agent, respectively. The units are super-pressurized to 360 psig with operating temperatures of 0°F to 130°F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure. A description of these extinguishing system units and the design and installation limitations, are contained in the Listee's Design, Installation, Operation and Maintenance Manual, P/N 45-N1230M-001, dated August 2005. These installations require the use of the Listee's Design and Flow Calculation Software, Version 1.0.X* (reference the Users Manual for Kidde Novec 1230 Design and Flow Calculation Software, P/N 45-N1230M-100, dated March 2006). Copies are available from the above Listee.

Fenwal Novec™ 1230™ Engineered Series, Models 44-100010-001, 44-100020-001, 44-100040-001, 44-100070-001, 44-100121-001, 44-100125-001, 44-100200-001, 44-100201-001, 44-100350-001, 44-100351-001, 44-100600-001, 44-100601-001, 44-100900-001, 44-100901-001 Clean Agent Extinguishing System Units, stored pressure type having nominal charging capacities of 10, 20, 40, 70, 125, 125, 200, 200, 350, 350, 600, 600, 900, 900 lb of Novec™ 1230™ Clean Agent, respectively. The units are super-pressurized to 360 psig with operating temperatures of 0°F to 130°F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

A description of these extinguishing system units and the design and installation limitations, are contained in the Listee's Design, Installation, Operation and Maintenance Manual, P/N 44-NV1230-001, February 2005. These installations require the use of the Listee's Design and Flow Calculation Software, Version 1.0.X* (reference the Users Manual for Fenwal Novec 1230 Design and Flow Calculation Software, P/N 44-NV1230-100, February 2005). Copies are available from the above Listee.

Fenwal Novec™ 1230™ Sphere and Bottom Discharge Engineered Series, Models 44-120250-001, 44-120251-001, 44-110201-001, 44-110202-001, 44-110203-001, 44-110204-001, 44-192041-001, 44-192041-002, 44-193040-001, 93-192040-002, 44-192042-001, 44-192042-002, Clean Agent Extinguishing System Units, stored pressure type, having nominal charging capacities of 15, 30, 44, 63, 101, 196, 350, 350, 560, 560, 850, 850 lb of Novec™ 1230™ Clean Agent, respectively. The units are super-pressurized to 360 psig with operating temperatures of 0°F to 130°F. The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure.

A description of these extinguishing system units and the design and installation limitations, are contained in the Listee's Design, Installation, Operation and Maintenance Manual, P/N 44-NV1230-001, February 2005. These installations require the use of the Listee's Design and Flow Calculation Software, Version 1.0.X* (reference Users Manual for Fenwal Novec 1230 Design and Flow Calculation Software, P/N 44-NV1230-100, February 2005). Copies are available from the above Listee.

Engineered Clean Agent Extinguishing System Units containing 3MTM Novec™ 1230 Fire Protection Fluid (FK-5-1-12), stored pressure type utilizing IS 7285 cylinders, having nominal storage capacities of 80 L of Novec™ 1230 Fluid (FK-5-1-12). The units are super-pressurized with dry nitrogen to 360 psig (24.8 bar) at 70°F (21°C) with operating temperatures of 0°F to 130°F (-18°C to 55°C). The units are designed for total flooding protection against Class A surface burning, Class B flammable liquid and Class C fires occurring within an enclosure. A description of these extinguishing system units and the design and installation limitations, are contained in the Listee's Design, Installation, Operation and Maintenance Manual, P/N 45-N1230M-600, September 2011. The units require the use of the Listee's Design and Flow Calculation Software, Version 1.0.X* (reference Users Manual for Fenwal Novec 1230 Design and Flow Calculation Software, P/N 45-N1230M-100, dated March 2006). Copies are available from the above Listee.