



**UNITED  
SAFETY**

**FIREBOY-XINTEX**

& SURVIVABILITY  
CORPORATION™



# FIRE SUPPRESSION & DETECTION SYSTEMS

FOR U.S. COAST GUARD INSPECTED VESSELS

USCG / ABS APPROVED  
MARINE & OFFSHORE  
YACHTS & SHIPS

ON BOARD,  
ON GUARD™



[FIREBOY-XINTEX.COM](http://FIREBOY-XINTEX.COM)

Grand Rapids, Michigan / Poole, England

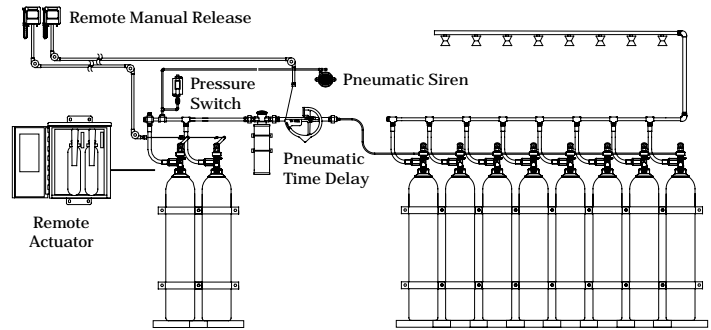
# WHY CHANGE?

## FROM CO<sub>2</sub> TO CLEAN AGENT

### SHIPBOARD FIRES ARE MAJOR THREATS TO SAFETY

One of the most dangerous perils at sea is fire. Difficult to deal with and potentially deadly, fire leaves the crew and passengers caught between two unforgiving elements. There's no local fire department to call; it's up to the crew to control the fire. Fire fighting at sea and on water is especially demanding. The complexity of design and component requirement of a traditional marine CO<sub>2</sub> system is there to achieve system safety. However, the results of an accidental discharge can be catastrophic.

With so many levels of safety required to be put into place, even on the smallest installation, CO<sub>2</sub> systems can add significant extra weight and cost to the overall build of any vessel. Imagine being able to replace most of that expensive, heavy pipe work and see what you could do with the extra space generated by not having all of those extra cylinders in storage!



Typical 'Marine' CO<sub>2</sub> System



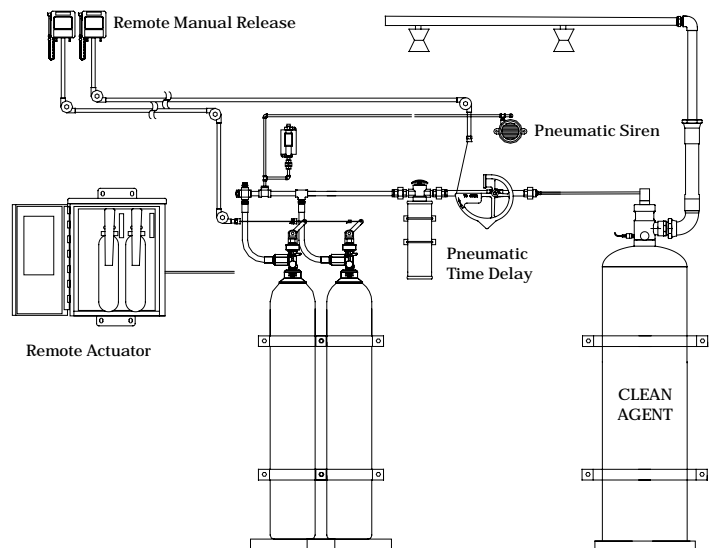
### ADVANTAGES OF CLEAN AGENT SYSTEMS OVER CO<sub>2</sub>:

- ▶ Weigh less than CO<sub>2</sub> systems for a given volume
- ▶ Take up less space than CO<sub>2</sub> systems
- ▶ Safer – CO<sub>2</sub> can cause serious injury or death

### SAFE FOR PEOPLE, EQUIPMENT, AND ENVIRONMENT

The issue with safety is not a question of whether or not carbon dioxide (CO<sub>2</sub>) can cause injury or death at the concentrations used in total flooding systems; everyone agrees the agent is nearly instantly lethal at those concentrations. The issue is whether or not the safeguards built into the systems, coupled with the requirements of standards and regulations, are adequate to ensure safety to those who work around, visit, or transit areas fitted with carbon dioxide systems.

Today's modern 'Clean Agents' are approved worldwide for use in 'Occupied' spaces. However, even with these safe chemicals, similar design rules have to be maintained to comply with IMO SOLAS requirements. Replacing just the chemical agent will have a profound effect on safety.

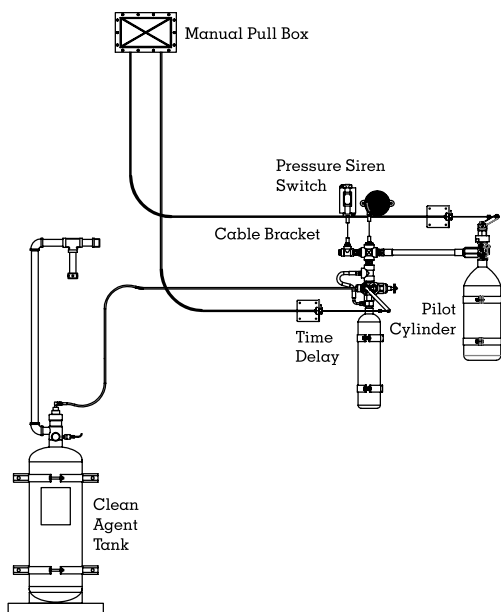


# CLEAN AGENTS

## REMOVE HEAT ENERGY, NOT OXYGEN

### EVERY SECOND COUNTS WHEN A FIRE OCCURS ON BOARD

Clean Agent systems reach extinguishing levels in less than 10 seconds. Since even a few seconds can mean the difference between survival and a life-destroying catastrophic fire, changing to the Fireboy FES system could give you a crucial margin of safety. That's why you need a fast, people-safe and effective fire suppressant: Clean agent waterless fire protection from Fireboy-Xintex.



### PERFECT FOR NEW BUILDS AND REFITS

The 'Fireboy' FES System provides the perfect choice for both new builds and refits and is currently the system of choice for many Commercial and Superyacht builders around the world. With the ability to eliminate a vast amount of industrial components, the advantages in both weight and cost are evident.

Effective on Class B and Class C fires, Clean Agent gas extinguishes fires quickly through a combination of chemical and physical heat removal. It does not smother flames by removing oxygen. Clean Agents remove heat energy from fire, not oxygen from the environment. Heat is absorbed from the flame zone and interrupts the chemical chain reaction of the combustion process. When fires are stopped this fast, it minimizes the risk of explosion and extensive damage.

### CLEAN AGENTS ARE APPROVED FOR ALL NOTIFIED BODIES



### HFC-227ea

HFC-227ea was originally developed to replace ozone-depleting fire suppressants such as Halon 1301. HFC-227ea does not deplete stratospheric ozone. It has been proven safe for people through extensive pharmacological testing rivaled by no other fire suppressant. Many fire suppressants cause collateral damage to the equipment and the assets they were supposed to protect – but not HFC-227ea. It deploys quickly and cleanly without leaving any residue or causing collateral damage. HFC-227ea is the world's most trusted choice in waterless fire protection. Unlike carbon dioxide (CO<sub>2</sub>) and HCFC-124, HFC-227ea is safe for people and can be used in occupied spaces on all types of vessels. HFC-227ea has been proven to be so GL safe that the chemical is approved as a propellant for pharmaceutical inhalers.

Unlike many other fire suppressants, HFC-227ea does not breakdown or metabolize when inhaled, which allows quick removal through normal respiration once the individual is no longer exposed.

### 3M™ NOVEC™ 1230

3M Novec 1230 is a clean fire suppression solution from 3M. 3M Novec 1230 offers an environmentally sustainable alternative to fluorinated chemical suppression agents, which does not compromise on performance or asset protection.

3M Novec 1230 offers rapid-fire suppression while alleviating installation and safety concerns which could be present in alternative inert gas solutions. Fire suppression applications often include the presence of people, so life safety is a critical issue when selecting a fire suppression product. 3M Novec 1230 fire suppression fluid is both low in acute toxicity and a highly efficient fire extinguishing agent. This means that 3M Novec 1230 fluid is designed to put out fires long before it reaches a level of concentration that could adversely affect humans, allowing ample time to egress the protected space. In fact, even at relatively high extinguishing concentrations, 3M Novec 1230 fluid offers the widest margin of human safety over CO<sub>2</sub> and inert gas.

### BENEFITS OF THE FIREBOY-XINTEX FES ENGINEERED SYSTEM

- ▶ Safe for personnel
- ▶ Reduced component count
- ▶ Reduced piping and weight
- ▶ Reduced nozzle count
- ▶ Ease of installation
- ▶ Cost-effective replacement for CO<sub>2</sub>
- ▶ System monitor integration
- ▶ Multiple discharge panel facility
- ▶ Lower stored pressure



# FIRE SUPPRESSION

## FIREBOY-XINTEX FES ENGINEERED SYSTEM

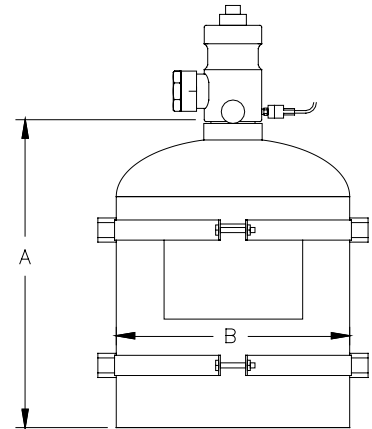
### MARINE FIRE SUPPRESSION - FES SERIES

Fireboy-Xintex FES Systems are designed based on the requirements of: USCG, MSC Circular 848/1267, and NFPA 2001.

Fireboy-Xintex Clean Agent Systems consist of DOT approved steel cylinder(s) equipped with a brass valve and internal siphon tube, and filled with HFC-227ea (FM-200®) Extinguishant, then super-pressurized to 360 PSI at 70°F. Multiple cylinders may be manifolded together in identical size and fill density to achieve coverage for the protected space. An embossed nameplate is permanently attached to the manufactured cylinder containing agent weight, tare weight, and gross weight, fill density and fill date.

8 cylinder sizes are available, as listed below. A factory installed optional liquid level indicator is available on the 106L through 343L cylinders.

PART NUMBER	TANK CAPACITY (LB)	OUTLET SIZE (IN)	DIM A NOMINAL		DIAMETER		EMPTY WEIGHT	
	lbs	in	in	(mm)	in	(mm)	lbs	(kg)
FES-8L-227	9-17	1 in NPT	12	(304)	10	(254)	32.6	(14.8)
FES-16L-227	18-35	1 in NPT	19.8	(502)	10	(254)	40.6	(18.4)
FES-32L-227	36-70	1 in NPT	32.8	(833)	10	(254)	57.5	(26.1)
FES-52L-227	58-114	2 in NPT	23.5	(596)	16	(406)	108.3	(49.1)
FES-106L-227	117-233	2 in NPT	40.2	(1021)	16	(406)	158.3	(71.8)
FES-147L-227	163-324	2 in NPT	53.3	(1354)	16	(406)	198.2	(89.9)
FES-180L-227	199-396	2 in NPT	64.3	(1634)	16	(406)	233.2	(105.8)
FES-343L-227	379-756	3.5 in Flare	57.7	(1466)	24	(610)	456	(207)



Designs can be supplied in the following formats: AutoCAD® 2010 (2D), Solidworks (3D)

### USCG AND ABS APPROVED

Fireboy-Xintex will provide design assistance to supply the best solution to your Clean Agent Fire Suppression requirements. Our extensive fire extinguisher engineering and manufacturing expertise covers 5 decades in the Marine Industry with the acknowledgment of Fireboy as innovators and supplier of top quality marine safety products. Our systems are in use on Commercial, Military, Yachts, Cruisers, and boats of all sizes and styles. When it comes to reliability, no one else has earned the high level of trust that we have.

For USCG Boats, there are two basic configurations of Clean Agent Fire Suppression systems acceptable to the marine market. Hazard areas under 6,000 cubic feet, may be installed without time delays and warning devices. For areas greater than 6,000 cubic feet, we include a 30 second time delay, and pneumatically activated warning sirens.



All systems are designed to IMO SOLAS CH II-REG 7 MSC.CIRC 848 & 1267

USCG system components are in compliance with the Fire Protection requirements of Marine Equipment Directive (MED) 96/98/EC as modified by Directive 2002/75/EC.

Drawings and designs to comply with:



# FIRE SUPPRESSION

## FIREBOY-XINTEX FES ENGINEERED SYSTEM

### FIRE SUPPRESSION IN SEVERAL LOCATIONS AT ONCE

Fireboy-Xintex Systems have been used for suppressing fires in several locations on a ship. Typical shipboard hazard locations include, but are not limited to:

- ▶ Engine rooms
- ▶ Pump rooms
- ▶ Electrical control rooms
- ▶ Flammable liquids storage
- ▶ Machinery spaces
- ▶ Galley
- ▶ Generator rooms
- ▶ Paint lockers



Manual Activation Station



Horn Strobe

### DESIGNED WITH PASSENGER SAFETY IN MIND

Our Manual Activation Station was designed with safety in mind. In an effort to reduce accidents on board by eliminating glass found in typical pull stations, a USCG Approved pre-scored Plexiglas window was designed. In the case of a fire, no one has to locate a hammer, or worry about shattered glass. Our conduit encased high-temperature manual discharge cables eliminate the time consuming and costly expense of corner pulleys, cutting conduit and running cable from the pull station to the cylinder.

Design concentrations will vary based on the specific hazard being protected. Our design team will calculate the exact quantity of clean agent HFC-227ea extinguishant required to meet the specific agent requirement.

### THE FES SYSTEM IS ACTIVATED SEVERAL WAYS IN ORDER TO DETERMINE THE SPECIFIC SUPPRESSION APPLICATION NEEDED

- ▶ Thermally with a quartzoid bulb
- ▶ Pneumatically
- ▶ Manually
- ▶ Combination of the above



# FIRE DETECTION

## FIREBOY XINTEX MARINE SAFETY SYSTEM

### MARINE & OFFSHORE: ANALOG ADDRESSABLE FIRE ALARM CONTROL

Host up to 128 Apollo fire detection devices per loop and 256 per system. Fireboy-Xintex Elite RSM uses leading edge microprocessor technology to provide a flexible control system with high reliability and integrity. Designed for all small to medium sized vessels, Elite RSM control panels can be expanded and networked to handle 16 independent loops.

With its large graphical display, ergonomic button, and indicator layout, the Fireboy-Xintex control panel is simple and easy to understand for installers, commissioning personnel, and boaters alike.

#### FEATURES

- ▶ 16 zonal LED indicators
- ▶ 2 programmable NAC circuits with internal synchronization support
- ▶ 5 programmable inputs
- ▶ 3 programmable relays
- ▶ 5.25 A power supply
- ▶ Large graphic display
- ▶ Real time clock
- ▶ Compatible with eMatrix graphics annunciator
- ▶ Powerful, network wide cause and effects (500 total). Fully user-programmable by point or zone
- ▶ Can be networked with additional RS and/or Elite panels
- ▶ Compatible with eView Annunciator
- ▶ Programmable through a PC connection to the panel
- ▶ Sensitivity adjustment and drift compensation
- ▶ Apollo Protocol
- ▶ Stores 1,000 last events in event log
- ▶ Stylish compact enclosure
- ▶ Compatible with eMatrix graphics annunciator
- ▶ Model ranges include with or without a dual-line internal DACT and effects (500 total). Fully user programmable by point or zone

#### CONFIGURATION FEATURES

- ▶ Comprehensive day/night mode facility
- ▶ Programmable one touch test mode
- ▶ Powerful and versatile cause and effect programming
- ▶ Cause and effect wizard including cause and effect action, disablement configuration, and test mode configuration

#### TECHNICAL

- ▶ **Panel Dimensions**  
14.5" w x 18.9" h x 4.25" d
- ▶ **Weight**  
20 lbs (without batteries)
- ▶ **Construction**  
16 AWG steel
- ▶ **Enclosure Finish**  
BS 00 A 05 light grey textured
- ▶ **Main Voltage Supply**  
110 or 230 VAC 50 or 60 Hz
- ▶ **Display**  
8 lines of 40 characters graphic LCD
- ▶ **Aux 24V Supply**  
Fused at 500 mA
- ▶ **Battery 24 Hour Standby**  
9 Ah 12V (2 per panel) (non-networked)
- ▶ **Fault Contact Rating**  
30 V DC 1 Amp
- ▶ **Alarm Contact Rating**  
30 DC 1 Amp



Elite RSM Panel

- ▶ **NAC Output Rating**  
3.1 V across both channels, 2.3 V across any one
- ▶ **Detection Loop**  
250 milliamp output
- ▶ **Detection Protocol**  
Apollo Discovery
- ▶ **Printer Port**  
Serial RS232
- ▶ **Serial Expansion Port**  
Serial RS485
- ▶ **PC Port**  
Serial RS232
- ▶ **Network Connection**  
Optional network cards allow the use of e-net networking or VES networking
- ▶ **NAC Synchronization**  
Internal Support
- ▶ **NAC Protocols**  
Apollo, System Sensro, Wheellock, Gentex, Amesco

**ELITE CPM CONVENTIONAL SYSTEM ALSO AVAILABLE**

# FIRE DETECTION

## FIREBOY XINTEX MARINE SAFETY SYSTEM



### ELITE RSM REPEATER PANELS

The Elite RSM fire alarm annunciator provides a simple and convenient method of extending the controls and indications of the Elite RSM fire alarm control panel to other locations. The large, graphic liquid crystal display and high brightness LED indicators duplicate the indications on the Elite fire alarm control panel at up to 15 additional locations via a simple, two-wire serial data connection. The Elite RSM repeater panel is available in either a 24V DC powered option (which can be powered via an additional 2 cores from the Elite RSM control panel/local 24V DC supply) or a 110V powered option with local battery back up.

Up to 15 Elite RSM repeater annunciators can be connected to each control panel on the Elite RSM network. Ideal where multiple points of indication and/or controls are required, such as crew's quarters and engineers cabins.

### USCG APPROVED ANALOG ADDRESSABLE DEVICES

- ▶ Smoke
- ▶ Heat
- ▶ Heat / Smoke
- ▶ Manual pull stations
- ▶ Sounder bases
- ▶ Sounder beacon bases
- ▶ Relay bases
- ▶ Beacons
- ▶ Sounders
- ▶ Intrinsically safe devices
- ▶ Line monitors
- ▶ Mini monitor module



Apollo's wide selection of smoke and heat detectors, manual pull stations, sounders and beacons are available to complete your system.

### SYNCRO ASM ADDRESSABLE SYSTEM ALSO AVAILABLE FOR IMO/SOLAS VESSELS

### ELITE CPM FIRE CONTROL PANEL

- ▶ UL864 approved
- ▶ Two, four or eight initiating circuits
- ▶ 24 hour standby with 7Ah batteries
- ▶ 4.0 Amps total NAC power available
- ▶ 5 Amp power supply
- ▶ Resettable Aux power output rated at 0.3A Listed
- ▶ Initiating circuits individually configurable as Fire or Supervisory
- ▶ Alarm verification selectable by zone
- ▶ Fire, Trouble and Supervisory relays
- ▶ Many advanced configuration options





# FIREBOY-XINTEX

ON BOARD, ON GUARD™

## CG/MA SERIES: MANUAL / AUTOMATIC DISCHARGE FIXED CLEAN AGENT FIRE EXTINGUISHER

- ▶ Protects engine rooms and machinery spaces
- ▶ Pre-engineered, total flooding system
- ▶ The safest way to combat an engine room fire
- ▶ Automatic discharge at 175°F (79°C) with optional manual release
- ▶ No water or powdery residue
- ▶ Includes locking lever for increased safety when removing or installing cable
- ▶ Includes powder coated mounting bracket and 2 in. helm display
- ▶ HFC-227ea and 3M™ Novec™ 1230 available



## GA SERIES: LARGE CAPACITY MANUAL / AUTOMATIC FIRE EXTINGUISHING SYSTEM

- ▶ Designed for larger boats, yachts, commercial applications
- ▶ Protection from 600 cu. ft. to 3,000 cu. ft. (600 cu. ft. to 4,000 cu. ft. with 3M™ Novec™ 1230)
- ▶ Pre-engineered, total flooding system
- ▶ Single and patented two-cylinder linked system design
- ▶ Located inside or outside protected area
- ▶ No water or powdery residue
- ▶ 3-Year Limited Warranty
- ▶ USCG, Factory Mutual, ISO RINA, Bureau Veritas Approved
- ▶ **Limited to 2,000 cu. ft. on USCG inspected vessels**

## CMD5 SERIES CO ALARMS

- ▶ Electrochemical sensor for immediate and stable sensing
- ▶ Long sensor life – Approx. 7 year End of Life (EOL)
- ▶ Multiple location warning
- ▶ Compact design for inconspicuous protection
- ▶ Battery operated version (CMD5-MB) requires no power wiring
- ▶ RCM5 Relay module available for generator shutdown



# ON BOARD, ON GUARD™

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