

Fire

Suppression & Detection

For Classed Vessels



FIRE SUPPRESSION



FIRE DETECTION



Marine & Offshore

FIREBOY - XINTEX
marine safety systems

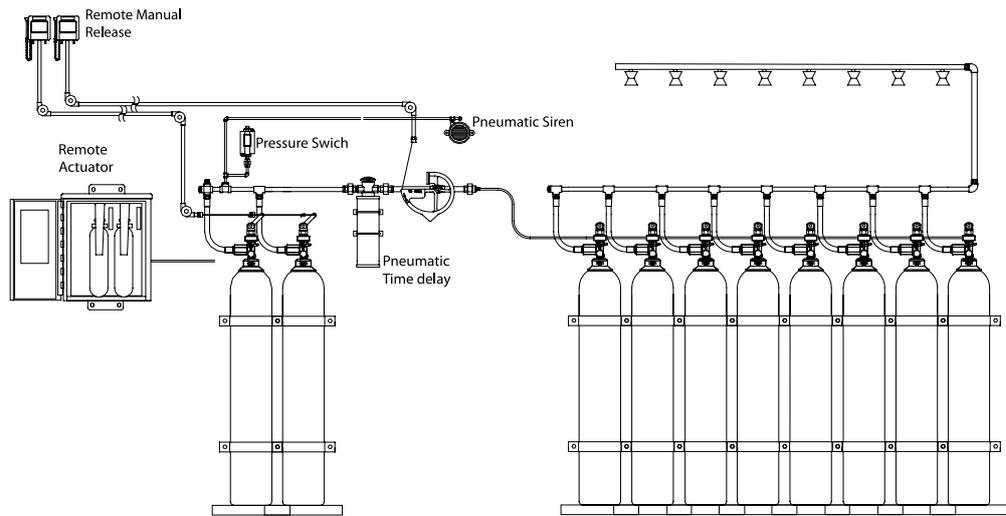
Why change from CO₂ To **Clean Agent**



Shipboard Fires Are Major Threats To Safety

Of all the perils at sea, one of the most dangerous 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 CO₂ system is there to achieve system safety, however, the results of an accidental discharge can be catastrophic.

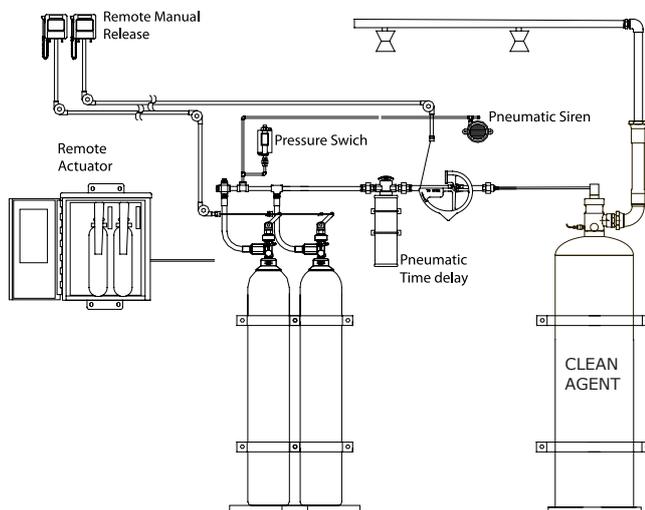
With so many levels of safety being required to be put in place, even on the smallest installation, CO₂ systems can add significant extra weight and cost to the overall build of any vessel. Imagine being able to replace most of that expensive, heavy pipe work with electrical cable & what you could do with the extra space generated by not having all of those extra cylinders in storage!



Typical 'Marine' CO₂ System

This table shows the typical usage of cylinders and chemical for a 500m³ system. Whilst there is comparable weight of the Chemical Agent between CO₂ and the Clean Agents, the number of cylinders required to store the chemical agent is reduced by a factor of 8:1 thereby giving a 40% reduction in system weight.

Agent	Agent Weight	Cylinder Volume	Number of cylinders	Footprint	Cube	Total weight
	Kg	Liters	Each	m ²	m ³	Kg
Halon 1301	216	246	1	0.3	0.5	400
Carbon Dioxide	364	68	8	0.6	0.9	1000
FE-13	425	68	9	0.6	1.0	1200
FM-200®	319	368	1	0.4	0.7	600
Novec™ 1230	373	368	1	0.4	0.7	600
Inergen	320	82	19	1.3	2.7	2000
Water Mist	9000			3.8	6.9	2900



Typical 'Competitors' Clean Agent System

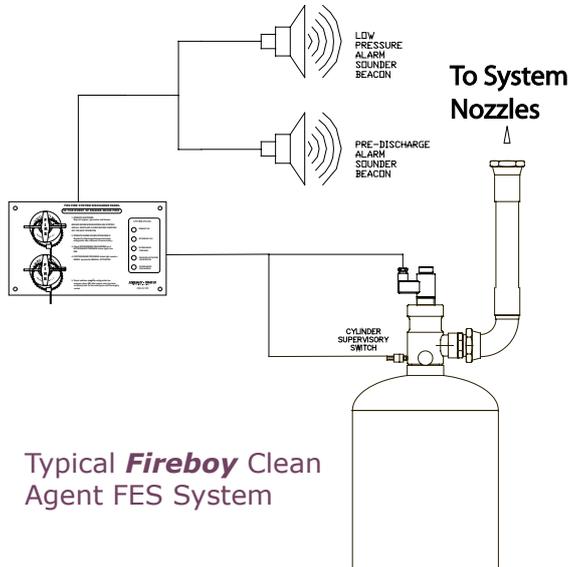
Safe For People, Equipment and Environment

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. Just replacing the chemical agent will not only have a profound effect on safety, but will also increase the cost of the total system overall system.

"The issue with safety is not a question of whether or not carbon dioxide 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 assure safety to those who work around, visit or transit areas fitted with carbon dioxide systems."

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**.



Typical **Fireboy** Clean Agent FES System

Benefits of the Fireboy-Xintex FES Engineered System

- Safe for personnel
- Reduced component count
- Reduced piping
- Reduced weight
- Reduced nozzle count
- Electrically activated with manual back-up
- Ease of installation
- Cost effective replacement for CO₂
- System monitor integration
- Multiple discharge panel facility
- Lower stored pressure

The '**Fireboy**' Electrically Released 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 A, 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 minimises the risk of explosion and extensive damage.

Clean Agents are approved by ALL Notified Bodies



HFC-227ea/ FM-200®

FM-200® was originally developed to replace ozone-depleting fire suppressants such as halon 1301. **FM-200®** does not deplete stratospheric ozone. It has been proven safe for people through extensive pharmacological testing rivalled by no other fire suppressant. Many fire suppressants cause collateral damage to the equipment and the assets they were supposed to protect. But not **FM-200®**. It deploys quickly and cleanly without leaving any residue or causing collateral damage. **FM-200®** is the world's most trusted choice in waterless fire protection.

Unlike carbon dioxide (CO₂) and HCFC 124, **FM-200®** is safe for people and can be used in occupied spaces on all types of vessels. **FM-200®** has been proven to be so safe that the chemical is approved as a propellant for pharmaceutical inhalers. Unlike many other fire suppressants, **FM-200®** does not breakdown or metabolize when inhaled, which allows quick removal through normal respiration once the individual is no longer exposed.

Novec™ 1230 Fire Protection Fluid

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

Novec™1230 offers rapid fire suppression whilst 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 is a highly efficient fire extinguishing agent. This means that 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, Novec™1230 fluid offers the widest margin of human safety over CO₂ and inert gas.



"In the case of carbon dioxide systems, the beneficiary of the risk and the risk taker are nearly always different parties. The decision to employ carbon dioxide systems is never made by those who are ultimately exposed to the danger of death or injury. Instead it is made by the owner or owner's representative and it is to the owner that the benefit of a cost savings accrues. In this case, it is the workers or other persons exposed to the possibility of an accidental discharge of the carbon dioxide system who assume the risk."

FIREBOY - XINTEX
marine safety systems

Fire Suppression



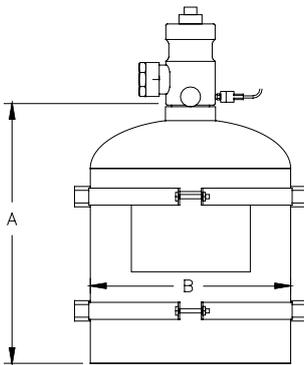
FIREBOY-XINTEX FES ENGINEERED SYSTEM

Fireboy-Xintex Clean Agent cylinders consist of a cylinder fitted with a valve and internal syphon tube, factory filled with either HFC-227ea (FM-200®) or Novec™ 1230 Fire suppression Fluid and super-pressurised to 360 psi. (25 bar) at 21°C. Cylinders sharing the same manifold shall be equal in size and fill density. Cylinders are available in various sizes, as shown in the chart below.

A nameplate is adhered to the cylinder displaying the agent weight, tare weight, gross weight, fill density and charge date.

Cylinders are available in either TPED or DOT certified.

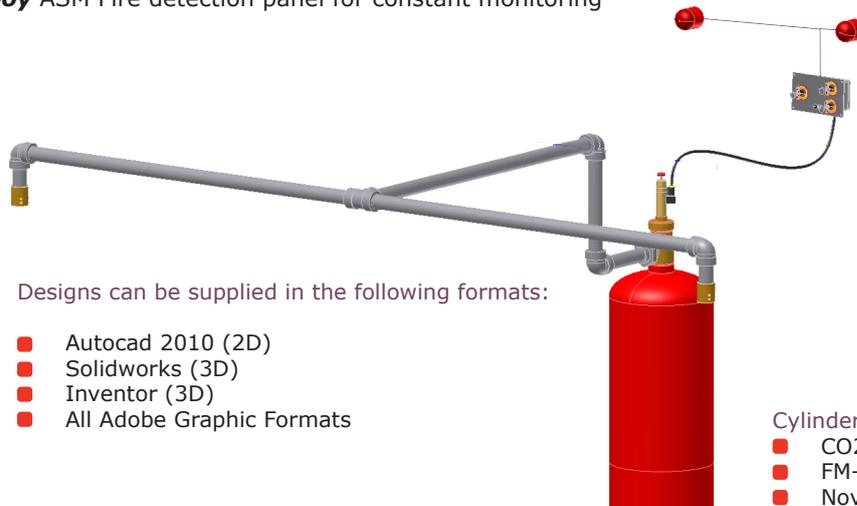
Complete systems are supplied as either MED / Type Approved or USCG Approved.



Part Number	Cylinder Capacity	Outlet Size	Dim A Nominal	Dim B (Diameter)	Tare-weight
	Kg	mm	mm	mm	Kg
FES-8L-227	4-8	25 BSP	304	254	14.8
FES-16L-227	8-16	25 BSP	502	254	18.4
FES-32L-227	16-32	25 BSP	833	254	26.1
FES-52L-227	26-52	50 BSP	596	406	49.1
FES-106L-227	53-106	50 BSP	1021	406	71.8
FES-147L-227	73.5-147	50 BSP	1354	406	89.9
FES-180L-227	90-180	50 BSP	1634	406	105.8
FES-343L-227	171.5-343	75 FLARE	1466	610	207

Complying fully with the FSS Code and IMO SOLAS including the latest amendment Msc.Circ 1267, **Fireboy-Xintex** has developed a range of electrical release panels that can be customised to suit virtually every application from single cylinder installations to multi-cylinder installations. The benefits of electrical discharge include utilising a reduced number of system components and reducing installation labour. For the very first time, this gives the ability to be cost competitive against multi-cylinder CO₂ system.

The Fireboy electrical discharge panel also offers the ability to communicate with a ships already installed monitoring system via Volt Free contact outputs for all alarm and monitoring states of the system giving ship-wide information. cylinder pressure status can also be fed directly to the **Fireboy** ASM Fire detection panel for constant monitoring



Designs can be supplied in the following formats:

- Autocad 2010 (2D)
- Solidworks (3D)
- Inventor (3D)
- All Adobe Graphic Formats

- Cylinder Stored Pressure:
- CO₂ - 140 bar
 - FM-200™ - 25 bar
 - Novec™ 1230 - 25 bar

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

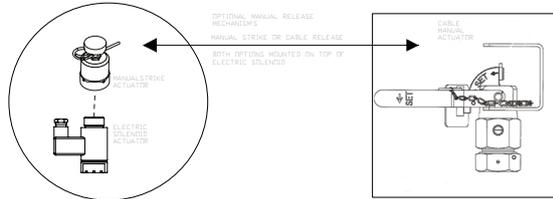
System components are in compliance with the Fire Protection requirements of Marine Equipment Directive (MED) 96/98/EC as modified by Directive 2002/75/EC.

Drawings and Designs to comply with:



MANUAL BACK-UP/SYSTEM OVERRIDE

Manual back-up is achieved in one of two ways. Firstly, if the cylinders are stored in a readily accessible space, a cylinder mounted 'Manual Strike Actuator' can be fitted on top of the Electrical Solenoid Actuator. Alternatively, the Manual Strike Actuator can be substituted for a 'Cable Release Actuator' which is also mounted directly on top of the Electrical Solenoid Actuator.



FES ELECTRICAL DISCHARGE PANELS

The FES-XXXPE range of discharge panels are designed to be flexible and are tailored to meet each individual applications design depending on the amount of spaces requiring protection. This flexibility also allows multiple FES-XXXPE discharge panels to be connected throughout the vessel.

Offering full operational and monitoring control of the entire fixed fire extinguishing system the **Fireboy-Xintex** range of FES Electrical Discharge Panels can be easily integrated with other on-board monitoring systems via the Volt Free outputs.

All control and alarm outputs are diode protected allowing multiple panels to be connected together even when protecting a single space, however, discharge panels are available for protecting multiple spaces individually each with their own timed discharge, monitoring and alarms.

IMO Msc.Circ 1267 Electrical Release Requirements

6.0 All systems should be designed to allow evacuation of the protected spaces prior to discharge. Means should also be provided for automatically giving audible and visual warning of the release of fire-extinguishing medium into any space in which personnel normally work or to which they have access. The alarm should operate for the period of time necessary to evacuate the space, but not less than 20s before the medium is released.

11.2 Electric power circuits connecting the containers should be monitored for fault conditions and loss of power. Visual and audible alarms should be provided to indicate this.

11.3 Pneumatic, electric or hydraulic power circuits connecting the containers should be duplicated and widely separated. The sources of pneumatic or hydraulic pressure should be monitored for loss of pressure. Visual and audible alarms should be provided to indicate this.

11.7 The containers should be monitored for decrease in pressure due to leakage and discharge. Visual and audible alarms in the protected area and on the navigation bridge or in the space where the fire control equipment is centralised should be provided to indicate this condition.



model shown:
FES-001PE

Features

- Compact size 250mm x 150mm x 75mm
- Dual 24V input supply
- Dual 24V supply monitoring
- Cylinder low pressure alarm
- Pre-discharge alarm
- Machinery shutdown control
- Activation line monitoring
- Cylinder discharge monitoring
- Volt free monitoring outputs
- Available in many configurations



SYNCRO ASM

Marine & Offshore Two Loop Analogue Addressable Control Panel

Features

- 16 zonal LED indicators
- 2 programmable sounder circuits
- 5 programmable inputs
- 3 programmable relays
- 3A power supply
- Large graphic display
- Real time clock
- Powerful, network wide cause and effects
- Sensitivity adjustment and drift compensation
- Apollo protocol
- Same look and feel as Syncro range
- Stores 1000 last events in event log
- Compact, stylish enclosure
- Installer friendly, removable equipment chassis
- Different language and character set variants available
- Fully EN54-2 and EN54-4 compliant



Config. Features

- Comprehensive day/night mode facility
- Programmable one touch test mode
- Powerful and versatile cause & effect programming
- Cause & effect wizard including:
 - Cause & effect action
 - Disabling configuration
 - Test mode configuration

Product Overview

- The Marine & Offshore Syncro ASM is a versatile range of open protocol fire alarm control panels compatible with existing Syncro fire alarm panel technology.
- Hosting up to 126 Apollo fire detection devices and modules per loop, Syncro ASM uses leading edge microprocessor based electronics to provide a flexible control system with high reliability and integrity.
- Suitable for all small to medium sized vessels, Syncro ASM control panels can be expanded and networked to become part of much larger systems if the need arises, therefore providing a future proof solution for any vessel.
- With its large graphical display and ergonomic button and indicator layout, the Syncro ASM control panel is simple and straightforward to understand for installers, commissioning engineers and end users alike.

Syncro ASM Panels

Protocol	Zones	Loops	Printer	Size (mm)
Apollo	16	2	No	385 x 310 x 90

Product Code	Language
90900-EN	English
90900-IT	Italian
90900-ES	Spanish



Other languages can be programmed upon completion of a simple conversion form.

Technical

Construction	- 1.2mm sheet steel
Enclosure finish	- BS 00 A 05 light grey textured
Mains voltage supply	- 230V AC 50 or 60 Hz.
Display	- 8 lines of 40 characters graphic LCD
Mains supply fuse	- 1.6A 250V
Power supply DC rating	- 24V 3 amps
Aux 24V supply	Fused at 500 milliamps
Battery (24 hour standby)	- 7Ah 12V (2 per panel) (non-networked)
Fault contact rating	- 30V DC 1 amp
Fire contact rating	- 30V DC 1 amp
Alarm contact rating	- 30V DC 1 amp
Sounder output rating	- Fused at 1 amp each
Detection loop	- 400 milliamp output
Detector protocol	- Apollo Discovery
Printer port	- Serial RS232
Serial expansion port	- Serial RS485 (Compatible with all Syncro I/O modules)
PC port	- Serial RS232
Network connection	- RS485 - Up to 64 panels via fully fault tolerant optional network card
Remote Silence input (SIL)	- Switched -ve
Remote fault input (FLT)	- Switched -ve
Remote reset input (RES)	- Switched -ve
Remote alert input (INT)	- Switched -ve
Remote evacuate input (CNT)	- Switched -ve
Download lead	- Standard S187, X187LS economy
Configuration	- Via Loop Explorer PC utility

ASM Repeater Panels

The Syncro VIEW fire alarm annunciator provides a simple and convenient method of extending the controls and indications of the Syncro fire alarm control panel to other locations.

The large, graphic liquid crystal display and high brightness LED indicators duplicate the indications on the Syncro ASM fire alarm control panel at up to 15 additional locations via a simple, two-wire serial data connection.

The Syncro VIEW is available in either a 24V DC powered option (which can be powered via an additional 2 cores from the Syncro control panel/local 24V DC supply) or a 230V powered option with local battery back up.

Up to 15 Syncro VIEW annunciators can be connected to each control panel on the Syncro network making VIEW ideal where multiple points of indication and/or controls are required such as crew's quarters and engineers cabins.

Product Code	Size (mm)
90925 (Std)	330 x 255 x 90
90931 (Flush mount)	310 x 240 x 40



MED Approved Analogue Addressable Devices

- Smoke
- Heat
- Heat/Smoke
- Manual Call Points
- Sounder Bases
- Sounder Beacon Bases
- Relay Bases
- Beacons
- Sounders
- Intrinsically safe Devices
- Line Monitors



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FIREBOY - XINTEX
marine safety systems

10 Holton Road,
Holton Heath Trading Park,
Poole, Dorset, BH16 6LT,
United Kingdom.

Tel: +44 (0)845 389 9462
Email: fireboy@fireboy-xintex.com
Web: www.fireboy-xintex.com