a.b.s. S.r.l. (Milan) Italy
Lombardia Street 310, 20861 S.Dam. Brugherio
Tel. +39 - 039 - 839631 - Fax. +39 - 039 - 8396349
e-mail:info@absfire.it www.absfire.it Capital euro 2,000,000.00

EASYFIRE® SYSTEMS 1-3-6-9-12 kg HFC227

RINA APPROVED ISO 9094 No. 525310CS/003- ISO 14520

EC certificate

OZONE FRIENDLY

Description:
The automatic extinguisher EASYFIRE® has been designed to have a very easy and quick installation way and to be in conformity with UNI 10877-9 nd NFPA 2001. This extinguishers can be installed and used to fight all class **A B C** fires.
EASYFIRE® unit is suggested to protect heater rooms, engine rooms, boats, inflammable deposit.
Automatic fire extinguisher EASYFIRE® are tested by RINA (Italian Naval Register) for small boats according to rule 97/23/CE "PED" of Bureau Veritas and quality certified ISO 9001 by RINA.
Extinguisher main components are:
- automatic valve with bulb setted at 93°C (or on request at 68°).
- navy fixing support
- RINA recognised extinguishing agent HFC 227 (known as FM200).

This automatic unit is specially designed for onboard engine boat, to protect fully automatically the engine compartment and or electric panels and mainframe.

Design of extinguishing agent quantity:
HFC 227 is a gas for total flooding system, the volume showed in below table is referred to the engine compartment without any opening for ventilation.
In case of opening/windows presence, the protected volume should be considered in a different way and our technical office must be contacted to determine the right gas quantity.
To determine the gas quantity the NFPA 2001 table A-3.5.1 must be followed, or also the equivalent UNI 10877-9.

Optional

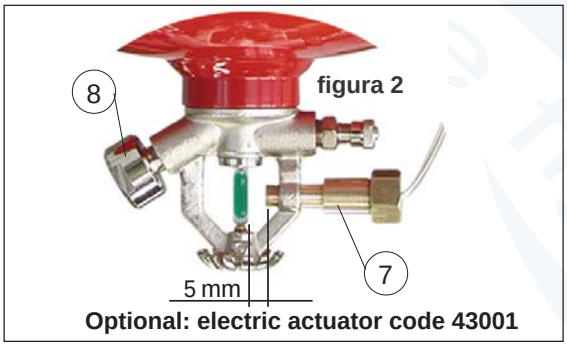


figura 2

Optional: electric actuator code 43001

Code	Charge kg	Extinguishant agent	Protected volume m³	Ø mm	Height mm
15230	1	**HFC227**	1.7	110	370
15231	3	**HFC227**	5.1	130	410
15232	6	**HFC227**	10	160	465
15224	9	**HFC227**	15	190	540
15233	12	**HFC227**	20	190	600

On request it will be availabe even 2 and 4kg

Working principle:
EASYFIRE® where the presence of personnel is not foreseen.
Unit intervention is done by seal bulb rupture.
This bulb breaking could happen by one of following ways:
A) by temperature increasing during first period of fires, this will cause a bulb breaking and a consequent discharge of the extinguishing agent.
B) Other system for bulb breaking, on request, could be:
a) by manually by manual discharge control device (our code 20412).
b) by using a pyrotechnical actuator (our code 43001).

EASYFIRE® with automatic glass bulb discharge valve are to be used in engine rooms.
In case of presence of people in the protected area the EASYFIRE® unit must be equipped with glass bulb not heat sensitive and with hand operated control only.
In case the unit requires maintenance, the system must be disconnected (even automatic or manual mode).
If the pressure gauge pointer is on red field it is necessary to call technical assistance to proceed with maintenance verifications.

Installations:
The unit must be installed using its special support (included in the std supply) with sprinkler valve downward. Upon request a special horizontal execution could be supplied.

Manual control device installation procedure:
A) place the support (3) as per fig 1 and fix (by screwing) the control device (2) horizontally.
If needed use the spacing washer included in the kit and/or not blocking glove (Loctite).
B) Fix the lever 1 on the control (2).
C) Screw the brass adaptor (4) on the support 3 for connection of sheathed steel cable.
D) Insert steel cable (5) into holes of brass adaptor (4), support (3) and lever (1).
E) Cut able at exact desired length and fix pull box and handle inside bridge room or close to instrument panel.

Electrical control device installation procedure:
1) Install electric control device (7) on the valve (8) checking that gap (free space) between glass bulb and actuator pin is 5mm.
2) Connect electric cable of pyrotechnic cartridge to fire detection panel (discharge card/module) or to control box **optional (cod. 23023).**
3) Electrical actuator can work with a minimum 12V tension and 1A current. On request, depending from working conditions, it is possible to connect up to 4 unit for a simultaneous intervention.

Optional: manual actuator Code 20412

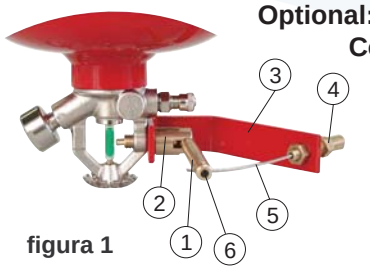


figura 1

a.b.s. S.r.l. (Milan) Italy
Lombardia Street 310, 20861 S.Dam. Brugherio
Tel. +39 - 039 - 839631 - Fax. +39 - 039 - 8396349
e-mail:info@absfire.it www.absfire.it Capital euro 2,000,000.00

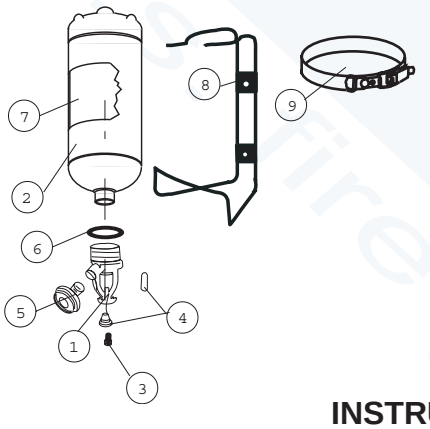
Operation:
The unit is pressurized at 10 bar at 20°C

Torque force:
The valve is screwed down to the tank at the prefixed torque between 5 and 6 Kg/m (i.e. between 50 and 60 Nm)

HFC 227 extinguishing agent
HFC 227 agent (chemical composition C_3 HF_7) is universally recognized a “clean agent” with no impact to atmosphere, its ODP value (Ozone Depletion Potential) is practically equal to 0.

Use and warning:
Even the HFC 227 is recognize as safe product for human health, it is recommended to avoid in any case the direct contact with skin and not to breath it during/after discharge or maintenance operations.
In case of skin contact with the product it is recommended to wash the part with plenty of water.
If necessary contact medical centre.

Use Remarks
1) The extinguisher can be used on electric fires (control panel or switch boards).
2) Ventilate room after gas discharge/intervention.
3) Refill and recharge the unit even partially used.



Maintenance and disposal:
Maintenance, handling, storage and disposal of the unit must be done following local regulations. A company who makes above activities and disposal of extinguisher agent should be authorized for such works.
Periodically check that pressure gauge indicators is on the green field, that means extinguisher is still well pressurized and ready to be used.
If pressure gauge indicator is on red field refer to authorized maintenance company.

Periodic inspection, servicing and tests:
The maintenance of unit should be done at least every 6 months, or according to local law.
Hydraulic tests of extinguisher body must be done every 12 years.

Table A-1-6.1.2(a) NFPA 2001	
Toxicity Information for **HFC227ea®**	
Property	Value %
ALC	>80 in 20% O_2
(NOAEL)	9,0
(LOAEL)	10,5
Note: ALC is the concentration lethal to 50 percent of a rat population during a 4-hour exposure. The ALC is the approximate lethal concentration.	

Spare part list

Pos.	Description	Code
1	Complete valve	24002
2	EC Cylinder	*
3	Bulb screw	24002/V
4	Spindle plug and 93°C Bulb glass (*on request bulb 68°C code 25014*)	25006
5	Manometer	20518
6	O-ring of valve	21044
7	Extinguisher agent HFC227	43141
8	Wall support	*
9	Belts and locker (is not included for the system to be 1 kg)	21081

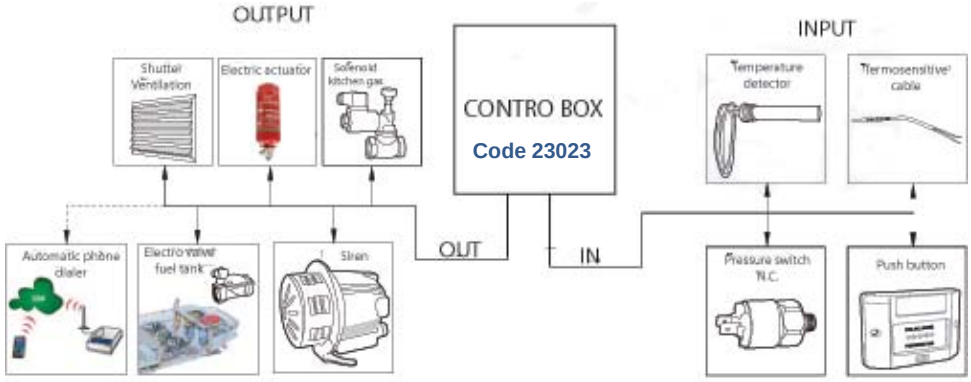
INSTRUCTIONS FOR THE USER

PHASE	EVENT	DANDER	SUGGESTIONS AND PRECAUTIONS	MESURES
TRANSPORT AND INSTALLATION	FALL	BUMP	Carry in container which protects the product from bump.	In case of dent, give the product back to the maker for control.
OPERATION	OVER-PRESSURE WEAR/CORROSION	BURSTING/ REDUCING OF THE THICKNESS	Pressurize extinguishers at 10 bar at 20°C. The pressurization must be done by means of a well-tuned pressure reducer. Avoid: - Bump which can damage the painting. - Washing and contact with corrosive materials.	If corrosion is pointed out please call the maintenance company for an immediate hydraulic test.
MAINTENANCE	IMPROPER DEPRESSURIZATION	VIOLENT CAST OF COMPONENT OR PART OF THEM	The maintenance must be done by qualified company (in extinguishers maintenance). The disposal must be done by qualified company (in chemical products disposal).	The maintenance of the extinguisher must be done according to the local regulation. The disposal must be done by qualifiedonly authorized company who make it according to the local regulations In case of contact with HFC227, wash immediately with a large amount of water.

a.b.s. S.r.l. (Milan) Italy
Lombardia Street 310, 20861 S.Dam. Brugherio
Tel. +39 - 039 - 839631 - Fax. +39 - 039 - 8396349
e-mail:info@absfire.it www.absfire.it Capital euro 2,000,000.00

ACCESSORIES ON REQUEST EASYFIRE® SYSTEMS

On request the easyfire system can be electrically activated with automatical detection system.
In the scheme below you can see an example of automatical detection system for firekill system with all its options available



Electric actuator with (cod. 43001 - 43000)

It can be connected with an emergency control push button or through a control panel in case there is an automatic detection system.
The electric actuator is a pyrotechnical charge, 5 years guaranteed at a work temperature from -20°C up to +80°C and humidity of 100%. The pyrotechnical charge can work with minimum 12 V tension and 1 A current.

Code 43001

Code 43000

TEMPETATURE DETECTOR (cod. 47038 - 47019)

The apparatus consists of two contacts mounted on two curved strips of nickel-iron, the contacts are electronically isolated from the strips, however, a complex that is called “crew” is in turn mounted in stress conditions in a sheath consisting of a tube extruded AISI. The temperature at which the sheath is taken. Any change in temperature dilates the sheath, which thus increases the tension that it exerts on the plate, causing or breaking the contact, as appropriate.

Code 47038
preset at 141°C
Code 47019
preset at 68°C

PRESSURE SWITCH (cod. 23024) PRESET AT 5 bar

Low pressure switch cod. 23024, which directly can alarm leaks or discharging.

Code 23024

Code 23009 (N.C.)
Code 23009_1 (N.O.)

MARINE CONTROL BOX (cod. 23023)

The central unit and control unit are manufactured with materials immunes to the marine environment and supplied with seal that guarantee maximum permeability. Furthermore, the chassis ensures adequate heat dissipation which allows long periods of operation. It controls all he above illustrated device. It can be programmed in 4 languages.

Code 23023

Central unit CPU

Dash board remote unit

CONTROL BOX (cod. 23022 or 23022_1)

This unit is used in combination with Firekill extinguishing system for boat engine or electrical board.
Led green indicate that circuit is operative
Red light indicates that extinguisher has been discharged.
Alarm audible buzzer included in the units will sound when system has been activated. Remove safety pin lift up door press red button inside to activate discharge.

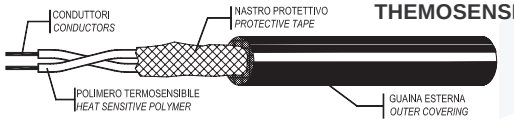
Control Box

Cod.23022

Control Box

Cod.23022_1

THEMOSENSIBLE CABLE



DATI TECNICI - *Technical Data* :

Temp. di intervento – *Alarm Temeperature:*	180°C - 356°F
Temp. ambiente – *Ambient Temperature:*	max. 105°C (221 °F)
Materiale Conduttori - *Conductors material:*	Acciaio – *Steel*
Resistenza Conduttori *Conductors resistance:*	~0,66 KΩ/Km
Tensione di lavoro *Operatine Voltage:*	42Vdc, 30Vac max.
Materiale isolamento - *Insulation material:*	Termosensibile- *Heat sensing*
Guaina esterna – *Outer Jacket* EPC	
Diametro cavo- *Overall cable dia.:* ~	4mm
Approvazione - *Approval:*	UL, FM