**Description:**
The automatic extinguisher EASYFIRE® has been designed to have a very easy and quick installation way and to be in conformity with EN 15004 and 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.

It must be equipped with pressure switch to check charge and it will allow it to interrupt shutdown of engines, generators, forced ventilation, or other permanently installed equipment which could compromise the levers of extinguishing medium in the protected area.

If the fire extinguisher is located inside the space protected or if the activation of the fixed system is automatic, a visual indication of discharge outside the protected room shall be provided.

The visual indication must be chosen by Customer depending on the detection system specifications.

Automatic fire extinguisher EASYFIRE® are approved by RINA (Italian Naval Register) for small boats according to ISO 9094 rule and 97/23/CE “PED” by Bureau Veritas.

Extinguisher main components are:
- Automatic valve with bulb setted at 93°C (or on request at 68°C);
- Marine bracket;
- Pressure switch;
- 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.

**PRESSURE SWITCH** (cod. 23024) PRESET AT 5 bar
Low pressure switch cod. 23024, which directly indicates alarm leaks or discharging.

**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 EN 15004.

**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.

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.

---

**Code Charge Extinguishant Protected Ø Height**

<table>
<thead>
<tr>
<th>Code</th>
<th>Charge kg</th>
<th>Extinguishant</th>
<th>Protected volume m³</th>
<th>Ø mm</th>
<th>Height mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>15230</td>
<td>1</td>
<td>HFC227</td>
<td>1.7</td>
<td>110</td>
<td>370</td>
</tr>
<tr>
<td>15231</td>
<td>3</td>
<td>HFC227</td>
<td>5.1</td>
<td>130</td>
<td>410</td>
</tr>
<tr>
<td>15232</td>
<td>6</td>
<td>HFC227</td>
<td>10</td>
<td>160</td>
<td>465</td>
</tr>
<tr>
<td>15224</td>
<td>9</td>
<td>HFC227</td>
<td>15</td>
<td>190</td>
<td>540</td>
</tr>
<tr>
<td>15233</td>
<td>12</td>
<td>HFC227</td>
<td>20</td>
<td>190</td>
<td>600</td>
</tr>
</tbody>
</table>

On request it will be available also 2 and 4kg
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 C₃HF₇) 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>
<thead>
<tr>
<th>Property</th>
<th>Value %</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALC &gt;80 in 20% O₂ (NOAEL)</td>
<td>9,0</td>
</tr>
<tr>
<td>(LOAEL)</td>
<td>10,5</td>
</tr>
</tbody>
</table>

Table A-1-6.1.2(a) NFPA 2001

<table>
<thead>
<tr>
<th>Property</th>
<th>Value %</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALC &gt;80 in 20% O₂ (NOAEL)</td>
<td>9,0</td>
</tr>
<tr>
<td>(LOAEL)</td>
<td>10,5</td>
</tr>
</tbody>
</table>

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

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

INSTRUCTIONS FOR THE USER

<table>
<thead>
<tr>
<th>PHASE</th>
<th>EVENT</th>
<th>DANGER</th>
<th>SUGGESTIONS AND PRECAUTIONS</th>
<th>MEASURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRANSPORT AND INSTALLATION</td>
<td>FALL</td>
<td>BUMP</td>
<td>Carry in container which protects the product from bump.</td>
<td>In case of dent, give the product back to the maker for control.</td>
</tr>
<tr>
<td>OPERATION</td>
<td>OVER-PRESSURE WEAR/CORROSION</td>
<td>BURSTING/REDUCING OF THE THICKNESS</td>
<td>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.</td>
<td>If corrosion is pointed out please call the maintenance company for an immediate hydraulic test.</td>
</tr>
<tr>
<td>MAINTENANCE</td>
<td>IMPROPER DEPRESSURIZATION</td>
<td>VIOLENT CAST OF COMPONENT OR PART OF THEM</td>
<td>The maintenance must be done by qualified company (in extinguishers maintenance). The disposal must be done by qualified company (in chemical products disposal).</td>
<td>The maintenance of the extinguisher must be done according to the local regulation. The disposal must be done by qualified and authorized company who make it according to the local regulations In case of contact with HFC227, wash immediately with a large amount of water.</td>
</tr>
</tbody>
</table>
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 available options.

• ELECTRIC ACTUATOR (cod. 43001)
  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.

• MARINE CONTROL BOX (cod. 23023)
  The central unit and control unit are manufactured with materials immune to the marine environment and supplied in IP65 version.
  Furthermore, the chassis ensures adequate heat dissipation which allows long periods of operation. It controls all the above illustrated device. It can be programmed in 4 languages.

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.

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.

Optional: electric actuator code 43001

Optional: manual actuator code 20412
ACCESSORIES ON REQUEST FIREKILL SYSTEMS

• TEMPERATURE 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, switcing the contact, as appropriate.

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

• THERMOCABLES
Linear heat detector, (thermocables) is a twisted double steel conductor cable with a special insulated sheath sensible to heat, wrapped with a protective tape, and overall surrounded with a special vinyl outer jacket (EPC) that has low moisture absorption, excellent resistance to UV radiation, and to a chemical agents (Gasoline, Ammonia, Methanol, Nitric Acid), and resistance to low temperatures (-40°C).

When intervention temperature has been reached, the insulation of the conductors melt down. Due to the twisted condition of the steel wires, there is the necessary mechanical strength to trigger immediately short circuit conditions.

THERMOCABLES

<table>
<thead>
<tr>
<th>Code</th>
<th>Temperature</th>
<th>Approvals</th>
</tr>
</thead>
<tbody>
<tr>
<td>47033</td>
<td>105 °C</td>
<td>//</td>
</tr>
<tr>
<td>47034</td>
<td>88 °C</td>
<td>UL/FM</td>
</tr>
<tr>
<td>47035</td>
<td>105 °C</td>
<td>FM</td>
</tr>
<tr>
<td>47036</td>
<td>138°C</td>
<td>UL/FM</td>
</tr>
<tr>
<td>47046</td>
<td>68 °C</td>
<td>//</td>
</tr>
</tbody>
</table>

FIXING BASE FOR THERMOCABLES code 47044