

**New
Product**

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... Invest in Quality*



HFC-227ea

Fire Suppression System

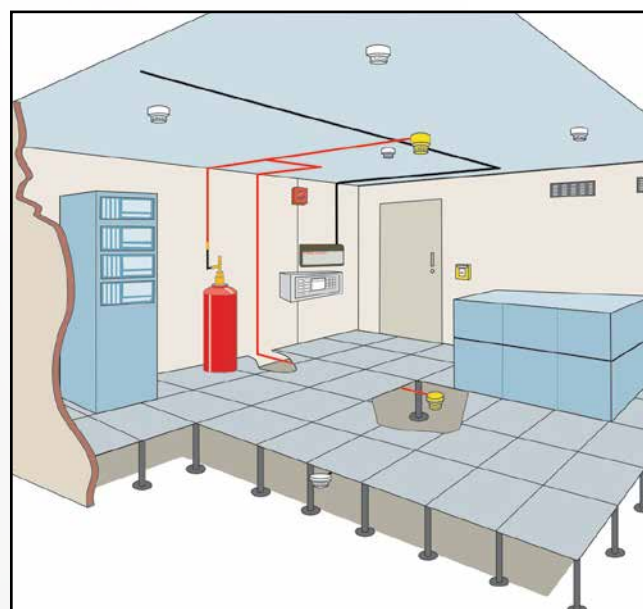
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HFC 227ea is a clean agent used as a flooding agent to help protect assets including data and data processing equipment in the event of a fire. Known as heptafluoropropane or HFC-227ea, is the most widely used clean agent replacement for Halon 1301 globally in the special hazards suppression market, globally. It has been preferentially selected by the market due to its unique combination of efficiency, cost, environmental properties, people safety, and its ability to prevent or extinguish fires. For a system installation in an existing or new facility, HFC-227ea is the Halon 1301 replacement agent of choice.

Applications

HFC-227ea is safe for use in applications where people are normally present (normally occupied spaces) for both Class-A and Class-B fire assets. HFC-227ea is intended to prevent or extinguish fires in situations where conventional extinguishing agents such as water, dry chemical, and carbon dioxide are unacceptable because they may cause collateral damage, significantly interrupt business productivity, or present a safety risk. These situations exist primarily where there is electrical or sensitive electronic equipment servicing a critical operation, the loss of which would not only be the value of the equipment but also the cost of business interruption. Other situations involve delicate or irreplaceable materials such as those found in museums, libraries and historical sites. Applications where HFC-227ea is an excellent choice for a total flood fire suppression system also include computer rooms,

telecommunication switch stations and facilities, semiconductor manufacturing facilities, data processing centers, clean rooms, and industrial process control rooms. Other examples of applications, include pleasure craft engines compartments, petrochemical facilities, chemical storage rooms, paint lockers, and other applications with hydrocarbon-based materials.



Mode of operation

When a starting fire is detected by one of the automatic fire detectors or when a push button is activated, the fire detection control panel sets off a fire alarm. After a object-related delay time the pressurized extinguishing agent cylinders are opened either electrically or pneumatically. The extinguishing agent, still liquid at this point, flows to the extinguishing nozzles where it vaporises and rapidly and effectively floods the room.

EXTINGUISHES WITHOUT LEAVING ANY RESIDUE

The extinguishing agent HFC-227ea

HFC-227ea is suitable for class A and class B fire and is used as total flooding agent. The gas pressure of 3.91 bar at 20°C favours a rapid vaporisation at the nozzles and speedy distribution throughout the room.

HFC-227ea is neither corrosive nor electrically conductive and therefore causes no damage through short circuits or through residues left on sensitive components. It is colourless and almost odourless and is in gaseous form at room temperature. Its molecules consist of carbon, fluorine and hydrogen. HFC-227ea deprives the flames of heat, thus interrupting the combustion reaction.



HFC-227ea

Chemical formula	CF ₃ -CHF-CF ₃
Chemical name	Heptafluoropropane
ISO designation	HFC-227ea
Specific weight (20 °C)	1.41 kg/l
State of aggregation	gaseous (at 20 °C/ 3,91 bar)
Boiling point	-16.5 °C (at 1.013 bar)
Environmental properties	No ozone depletion potential (ODP 0) global warming potential (GWP 3500)



Safety of persons

Due to its worldwide use HFC-227ea has become one of the most studied synthetic extinguishing agents so that has been assessed as safe for use in rooms where persons are present. The design concentration for IT rooms is between 7.9 and 8.5 % and thus lies below the NOAEL value.

Safety factor at the design concentration

- NOAEL 9 % by volume (no observed adverse effect level). The highest extinguishing gas concentration in % by vol., at which no detriments to health have been observed.
- LOAEL 10.5 % by volume (lowest observed adverse effect level). The lowest extinguishing gas concentration in % by vol., at which detriments to health have been observed.

**HFC-227ea
FIRE EXTINGUISHING SYSTEM**

- Excellent price/performance ratio
 - Robust design, so low maintenance costs
 - Rapid extinguishing effect
 - Safe for use in occupied areas
 - No extinguishing agent residues, neither corrosive nor electrically conductive
 - Simple design and hydraulic calculation available after order by using VDS software.
- Higher operating pressure possible than comparable systems, so
 - longer pipeworks and
 - multi-zone systems can be achieved
 - Compact and space-saving
 - Worldwide recognised and approved extinguishing agent

Benefits of HFC-227ea total flooding System

- Classification**
Works on class A, B, C fires and fires involving electrically - charged devices. Effective on a wide range of flammable and combustible materials.
- Electronics-Friendly**
Shown to be electrically non-conductive and is safe for electrically charged equipment, it is kinder on electronics than the majority of extinguishing agents available in the market.
- Ozone, Environment-Friendly**
Being a clean-agent, this is an eco-friendly alternative to chemical and water-based extinguishing systems. As HFC-227ea already exists as a gas in the Earth's atmosphere and is one of the by-products of combustion, it does not harm the Earth's stratospheric ozone layer. Its atmospheric lifetime is minimal.
- Superior To Other Gas Agents**
HFC-227ea is superior to other gas-based extinguishing agents that have lower boiling points and tend to be corrosive.
- High-value Risk Protection**
Suitable for protection on a range of high - value risks as it virtually eliminates damage to high-tech equipment, artwork and other delicate and sensitive objects.
- No Clean-up Required After Discharge**
After a discharge, the extinguishing agent can be removed by simple ventilation.
- 24-hour Protection**
Automatic detection and actuation controls ensure fire protection is always 'on'.

Multiple Triggers
The system can be triggered either by the manual actuation system or through the automatic detection system.

**HFC-227ea
FIRE EXTINGUISHING SYSTEM**

- **Available cylinder sizes:**
7,5, 16, 20, 40, 50, 90, 120, 150 Liters
- Pressurized at 25Bar at 20°C
- Single - or multi-cylinder systems
- Single - or multi-zone systems

Example of use EDP	
Design concentration*	Minimum usage quantity
7.9 % by volume	62.5 kg/100 m³
*(ISO 14520-9) / EN 15004-5 (draft)	

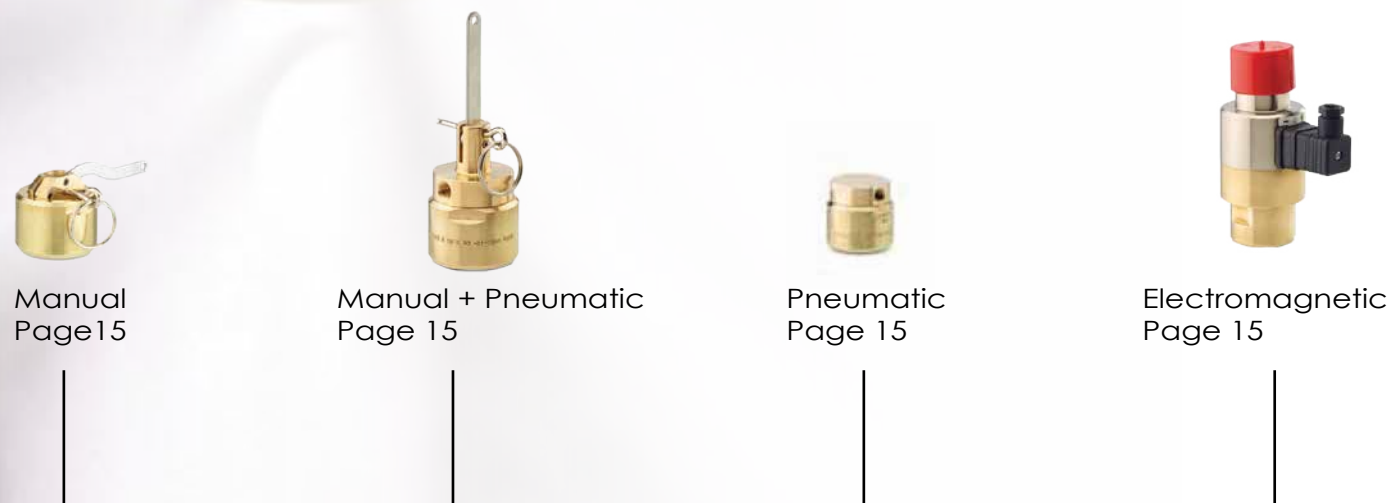
PERCENTAGE EXTINGUISHMENT (at 20°C)

STANDARDS AND REGULATIONS		NFPA 2001	ISO 14.520
CLASS A	% Kg/m³	6.7 0.524	7.9 0.625
CLASS B	% Kg/m³	8.7 0.695	9.0 0.721
CLASS C / HIGHER HAZARD CLASS A	% Kg/m³	7.0 0.549	8.5 0.677



VALVES

Large-orifice clean agent valves with flexibility of actuation methods
For all Clean Agent installations.



Can be used with a range of different actuators



049 mm ORIFICE



033 mm ORIFICE



25E ORIFICE

VdS Approval



EN 12094-6:2006

VALVES, ACTUATORS & ACCESSORIES

RELEASE DEVICES

Devices to actuate the release of extinguishing agent.

For use with all types of previous Valves.

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	Manual	Manual / Pneumatic		Pneumatic	
Technology	single piston	single piston	double piston	single piston	double piston
Max. pressure	300 bar	300 bar	300 bar	300 bar	300 bar
Valve connection	M 42 x 1,5	M 42 x 1,5	M 42 x 1,5	M 42 x 1,5	M 42 x 1,5
Pneumatic connection	-	G1/8"	G1/8"	G1/8"	G1/8"
Actuation force / pressure	< 150 N	< 150 N / 20 bar	< 150 N / 10 bar	20 bar	10 bar
Body material	Brass	Brass	Brass	Brass	Brass
Height	54	136,5	156,5	50	71
Diameter	Ø50	Ø50	Ø50	Ø50	Ø50

ELECTROMAGNETIC RELEASE DEVICE

Device to electrically actuate the release of extinguishing agent.

For use with all types of previous Valves.

- Most commonly used as a master valve to actuate the system electronically, such as with connection to a smoke or heat detection device.

- Electronically actuates the release of extinguishing agent.

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WITH BLOCKING DEVICE.

To perform maintenance while under pressure

	With diode	Without diode	With diode	Without diode
Valve connection	M42 x 1,5	M42 x 1,5	M42 x 1,5	M42 x 1,5
Nominal voltage	24 VDC	24 VDC	24 VDC	24 VDC
Electrical connection	-	-	PG 9	PG 9
Nominal current	0,5 A	0,5 A	0,5 A	0,5 A
Protection Class	IP65	IP65	IP65	IP65
Height	135 mm	135 mm	135 mm	135 mm
Diameter	Ø65 mm	Ø65 mm	Ø80 mm	Ø80 mm

PRESSURE GAUGES WITH PRESSURE SWITCH

Measures and displays the cylinder pressure to verify that cylinders are properly filled and charged.
For HFC-227ea and NOVEC.
Rear mounting.
- Integrated pressure switch.
- Choice of NC or NO.
- Choice of 0 to 40 bar or 0 to 60 bar.



Position	NC	NO	NC	NC
Preset pressure	22,5 bar	22,5 bar	38 bar	42 bar
Scale	0-40 bar	0-40 bar	0-60 bar	0-60 bar
Connection	Rear - 2 wires	Rear - 2 wires	Rear - 2 wires	Rear - 2 wires
Diameter	Ø55 mm	Ø55 mm	Ø55 mm	Ø55 mm
Valve connection	M 10 x 1	M 10 x 1	M 10 x 1	M 10 x 1

PRESSURE GAUGES

Measures and displays the cylinder pressure to verify that cylinders are properly filled and charged.
For HFC-227ea and NOVEC.
Rear mounting.
- Integrated pressure switch.
- Choice of 0 to 60 bar or 0 to 100 bar.

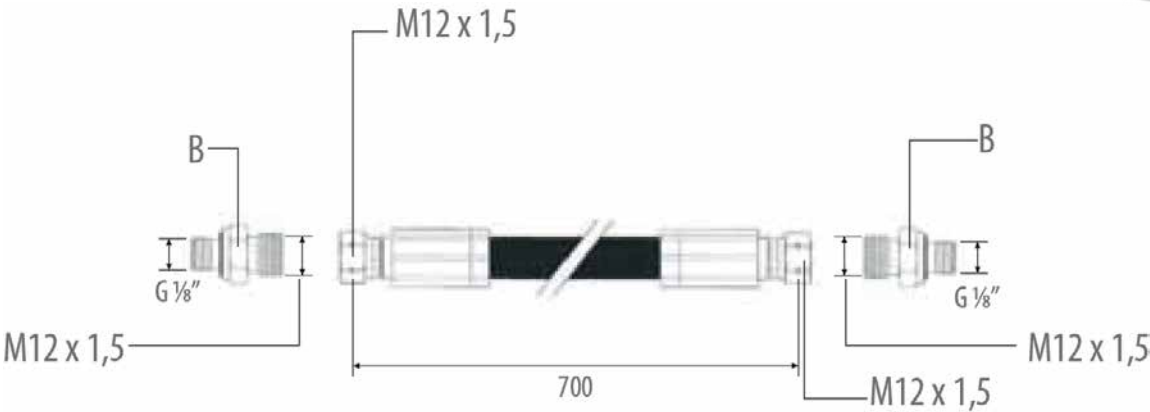


Scale	0-60 bar	0-100 bar
Connection	Rear	Rear
Connection	No connection	No connection
Diameter	Ø40 mm	Ø39 mm
Valve connection	M 10 x 1	M 10 x 1

PILOT HOSES DN6

Hose to connect multiple cylinders in a series.
Connects a master valve or a pneumatic actuator
with an other pneumatic actuator

- Both ends have a straight fitting
- 400 bar working pressure
- With O-rings



A2	700 mm	2 x M12 x 1,5	75 mm
Adapter B		M12 x 1,5 / G1/8	



Each hose requires 2 adapters.
Must be ordered separately.

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EN 12094-8:2006-07

SPECIFICATIONS

Working pressure	400 bar	Temperature Range	-40°C to 100°C	Interior diameter	1/8"
Burst pressure	1600 bar	Material	Synthetic rubber	Norm	EN 857 2 SC
Torque	20-25 Nm		oil resistant		

DISCHARGE HOSES

Hose to connect the cylinder valve to the manifold in fixed fire suppression systems.

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EN 12094-8:2006-07



FOR VALVE
for 49mm Valve



FOR VALVE
for 33mm Valve



FOR VALVE
for 25E Valve

Working pressure	53 bar	53 bar	Max. 380 bar
Burst pressure	159 bar	159 bar	1520 bar
Temperature range	-40°C to 100°C	-40°C to 100°C	-40°C to 100°C
Torque	38 - 42 Nm	38 - 42 Nm	38 - 42 Nm
Material	Synthetic rubber oil resistant	Synthetic rubber oil resistant	Synthetic rubber oil resistant
Norm	EN853 2 SN	EN853 2 SN	EN853 2 SN
Valve connection (inlet)	2 1/2" 12-UN	1 7/8" 12-UN	W21,8 x 1/14" DIN 477
Manifold connection (outlet)	R 2"	R 1 1/2"	G 3/4"
Min. bending radius	640 mm	510 mm	130 mm
Length	550 mm	500 mm	450 mm

CHECK VALVE

Prevents backflow into the cylinder Required for each hose attachment to the discharge manifold.



FOR VALVE
49mm



FOR VALVE
33mm



FOR VALVE
25E

Inlet connection	Rc 2"	Rc 1 1/2"	G 3/4"
Outlet connection	R 2 1/2"	R 2"	R 1"
Working pressure	53 bar	53 bar	< 360 bar
Material	Brass	Brass	Brass
Hex	80 mm	65 mm	42 mm

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EN 12094-8:2006-07

PRESSURE & FLOW DETECTOR SWITCH

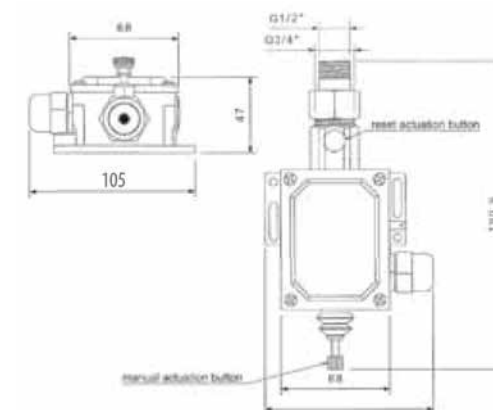
Used to send a signal that the system is discharging. Pressure Activated.

KEY FEATURES

- Sends a signal to a control panel or alarm box at the earliest phase of discharge
- Actuated at 2 bar pressure
- Flexible Voltage/Amp power source



Opening Pressure	2 bar
Design Pressure	200 bar
Test pressure	300 bar
Connection	G 1/2"
Power source	400 VAC / 3A or 24 VDC / 10 A
Protection	IP65



NOZZLES FOR HFC-227 EA

Pre-bored and preassembled discharge nozzles for HFC 227ea fire suppression systems.

KEY FEATURES

- Available in 360° or 180° versions
- Solid Brass
- Max working pressure: 100 bar



180°



360°

1/2"
3/4"
1"
1 1/4"
1 1/2"
2"

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