

IMPERIAL

FIRE ENGINEERING

The Expert in Fire Protection System



VSN1230 Fire Extinguishing System using
3M™ Novec™ 1230 Fire Protection Fluid

VIKING

EFFICIENT +

fast and smooth

Lost data, the breakdown of machines and equipment, on which enterprise-critical business processes are proceeded, or a total breakdown of operations – those are risks, which represent a concrete existential threat for every company. Companies with unique and high-value technical equipment and central IT systems are dependent on the high availability of these critical operating resources. This is inevitably leading to growing expectations concerning fire protection. Here fire extinguishing systems are in demand, which detect a developing fire in its initial stage and extinguish it in an exceptionally fast and protective manner so that even sensitive components are not damaged e.g. by residues of extinguishing agent. This is the VSN1230 fire extinguishing system has been developed using 3M™ Novec™ 1230 Fire Protection Fluid. It is characterised by its fast flooding of the room (< 10 seconds) and its highly extinguishing effectivity. The extinguishing agent itself is toxicologically harmless; it extinguishes without leaving any residue and gets along with a small storage volume.

A well thought-out system

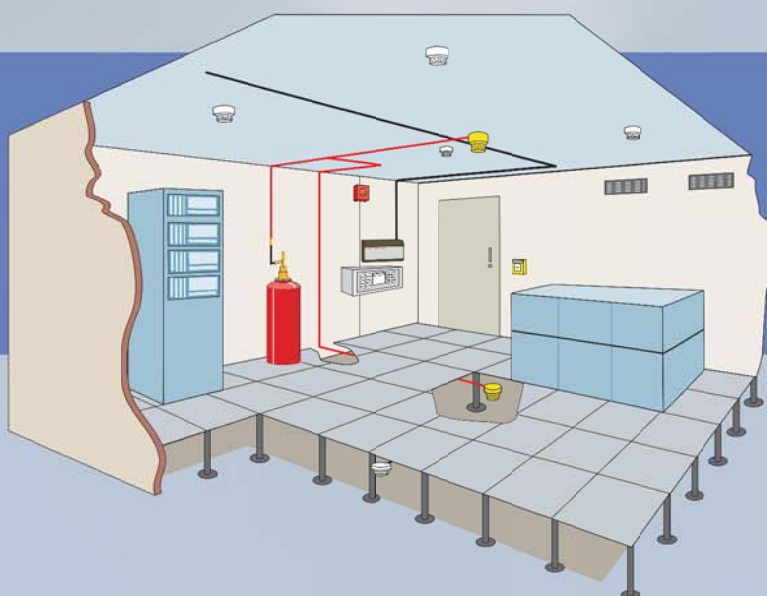
The VSN 1230 fire extinguishing system can be individually adapted to suit nearly every area. Nozzle holes and container fill volumes are the result of object-specific design calculations and characterise a system optimised down to the smallest detail. The charging pressures of up to 50 bar mean that multi-zone systems and longer pipeworks can be designed. No separate space is needed for the supply of extinguishing agent, it can be located in the protected area itself.

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 an object-related delay time the pressurised 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.

The extinguishing agent Novec™ 1230

The fire extinguishing agent Novec™ 1230 extinguishing agent acts both physically and chemically. Novec™ 1230 is widely used throughout the world and thanks to its environmental properties it has become established in many countries as the extinguishing agent for manageable IT and electrical risks. Novec™ 1230 is suitable for class A and class B fire and is used as total flooding agent. It 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 oxygen. Novec™ 1230 deprives the flames of heat, thus interrupting the combustion reaction.



VSN1230
fire extinguishing systems –
efficient fire protection for
rooms with electrical and
electronic installations

CLEAN

extinguishes without leaving any residue

A guaranteed future-safe extinguishing agent

As manufacturer of the extinguishing agent Novec™ 1230 the company 3M™ came up with the idea of the “3M Blue Sky Warranty” for the extinguishant: If in the future the extinguishing agent is banned or its use restricted because of its ozone depletion potential or global warming potential then 3M will refund the purchase price.

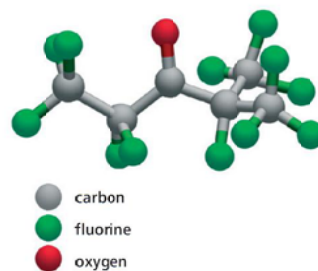
Novec™ 1230 of 3M™	
Chemical formula	CF ₃ CF ₂ C(O)CF(CF ₃) ₂
Chemical name	Dodecafluoro-2-methylpentane-3-one
ISO designation	FK-5-1-12
Specific weight (20 °C)	1.6 kg/l
State of aggregation	Liquid (at 25 °C /1.013 bar)
Boiling point	49.2 °C (1.013 bar)
Environmental properties	No ozone depletion potential (ODP 0) Low global warming potential (GWP 1) Atmospheric lifetime <5 days

Safety of persons

Novec™ 1230 has an outstanding safety factor, reaching the NOAEL value (No Observed Adverse Effect Level) of 10 %. When used to protect IT rooms this safety factor is 78 % – measured for the release concentration of 5.6 % in accordance with DIN ISO 14520-5. This is another reason why the fire protection working group of the Employers’ Liability Insurance Associations confirms that Novec™ 1230 is a safe extinguishing gas, particularly when used for areas frequented by persons. In its plan for new alternative extinguishing agents (SNAP Program = Significant New Alternatives Policy Program), the USA’s EPA (Environmental Protection Agency) certifies Novec™ 1230 as harmless when used as an extinguishing agent for flooding areas where people are present.

Safety factor at the design concentration

- ▶ NOAEL 10 % 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 % by volume (lowest observed adverse effect level)
 The lowest extinguishing gas concentration in % by vol., at which detriments to health have been observed.



Novec™ 1230 molecule

ADVANTAGES

VSN1230 fire extinguishing system

- ▶ Very high environmental compatibility
- ▶ An extinguishing agent where its use in the future is protected by the 3M™ "Blue Sky Warranty"
- ▶ Optimised system design by using professional VSN1230 calculation software
- ▶ Robust design, so low installation and maintenance costs
- ▶ Rapid extinguishing effect
- ▶ Exceedingly safe for use in occupied areas
- ▶ No extinguishing agent residues, neither corrosive nor electrically conductive
- ▶ Higher operating pressure possible than comparable systems, so
 - longer pipeworks and
 - multi-zone systems can be achieved
- ▶ Compact and space-saving
- ▶ Approved system, E.G. UL, FM, VdS, GL, ABS
- ▶ World-wide recognised and approved extinguishing agent



Example of a multi-cylinder system

What you're looking for: VSN1230 system types from A to Z

- ▶ Available cylinder sizes:
22, 25, 40, 50, 80, 100, 140, 180 litres
- ▶ Pressure stages available: 25, 42, 50 bar
- ▶ Single- or multi-cylinder systems
- ▶ Single- or multi-zone systems

Example of use EDP	
Design concentration*	Minimum usage quantity
5.6 % by volume	82.5 kg/100 m ³

*(ISO 14520-5) / EN 15004

Extinguishing Nozzles



The Viking Corporation (Far East) Pte Ltd
69, Tuas View Square, Westlink Techpark,
Singapore 637621
Mobile : +65 96285717
Tel : +65 62784061
Fax : +65 62784609
E-mail: jkoh@vikingcorp.com
www.vikinggroupinc.com



Right reserved to make technical changes.
Detailed information can be found in the
appropriate technical data sheets.

For more information please contact:

IMPERIAL
FIRE ENGINEERING

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บริษัท อิมพีเรียลไฟร์เอ็นจิเนียริ่ง จำกัด

16 ถ. รามคำแหง แขวงหัวหมาก เขตบางกะปิ กรุงเทพฯ 10240

Tel. 02-3196000 Fax. 02-3190530

Email: contact@ife.co.th

Website: www.ife.co.th / www.imperial.co.th / www.vikinggroupinc.com