Description

VID Fire-Kill low pressure water mist system model BB is primary developed as a life safety system. The main target is to protect persons which are vulnerable such as elderly, disabled persons, small children etc.
The system can easily be wall mounted and connected to an existing water supply and power source.
Typically fire scenario starts when people are asleep. Due to bedroom lamps falling over, people smoking in bed, heater located close to the bed etc. is a typical source of fire. The BB system will detect the fire at an early stage and fight it with a minimum amount of water. In addition to saving the person's life, the secondary damage due to water is minimized.

System and application

The VID Fire-Kill Low Pressure Water Mist Residential Home Protection System Model BB is a fully automatic water mist fire protection system designed specifically for the protection of human lives as well as buildings. This makes the system suited for applications where vulnerable people are situated as residential homes, homes for the elderly, hospitals and institutions etc.

Water Pressure

The system does only need 2.5 bar water pressure to operate which means that the system many places can operate on mains water supply and where this pressure cannot be supplied; only a very small pump is needed.

Core components

The system consists of small metal panels which come in any color needed, and inside the metal panel's two stainless steel pipes run. The one pipe is the water supply pipe, and this pipe can be used to travel water throughout a hole installation, covering many rooms only be connecting it to mains water one place. The other pipe is a dry pipe with integrated nozzles. When water is supplied to this pipe, water mist is created from the small nozzles which are installed with 0,85 meter spacing throughout the panel length.

Beside the straight lined Metal Panels, the system can also be supplied with corner modules, tee modules and special modules for the system to be able to be installed in a total application with wall corners, several rooms etc. To cover the assemblies between the Metal panels, cover metal plates are supplied. The pipes integrated in the Metal Panels are connected with special quick connections which are pressure tested from 2-20 bar water pressure.

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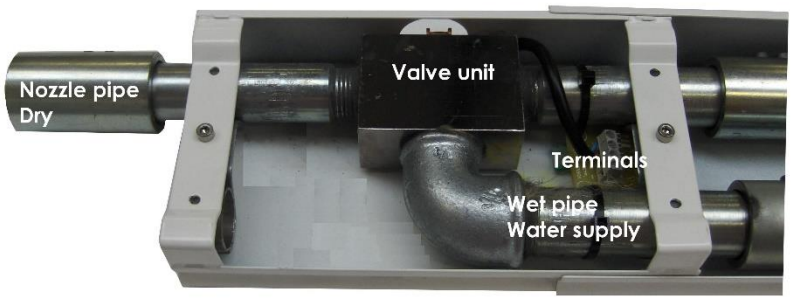
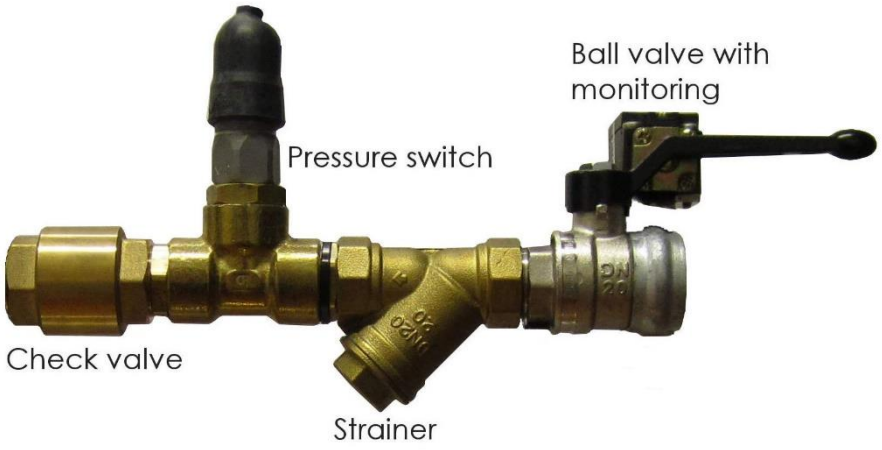


To feed the system with from the mains water supply, a Water supply Unit should be used. This unit consists of a check valve ensuring water in the system not to flow back into the mains water pipe system, of a strainer to ensure impurities not entering the pipe and nozzle system, of a pressure switch which will give an alarm in case the mains water pressure drops below the minimum system required, a tee to drain the system if needed, and a manual ball valve to close the water supply. The valve is surveyed and will give alarm in case of the valve being closed.



To feed the nozzle pipes, Valve sections panels are used. These Valve panels are installed between the nozzle panels and can feed water two ways or one way only. The panels are also used to detect the fire close to the valve though a thermocouple heat detector which is integrated into the valve panel. The signal from the thermocouple is transferred to an Electrical Control Unit through a 4 wire cable. Two wires are used to send the thermocouple signal to the Control unit and the two other wires are used to activate the zone valve. Making the zone detection and zone activation in one cable ensures that the zone where a fire is detected also is the zone where the system activates.

Besides the zone detection coming from the thermocouples integrated in the Valve modules, a smoke detector should also say a fire has started. This smoke detector signal can be shared by several valve units if there are installed several valve units in one room. The smoke detector is connected to the Electrical Control Unit which also supplies the power to the smoke detector. The Smoke Sensors should be place at the center of the location, though it should not be covering an area larger than 30m2.

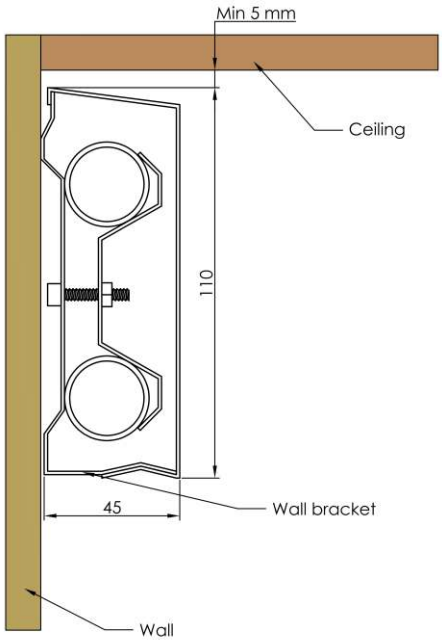
The Electrical Control Unit should be installed in close proximity of the protection system and should be supplied with a constant 230V AC 50 HZ feed. The Electrical Control Panel does however come with a 48h back-up battery in case of mains power interruption. The unit can control up to six valve sections and six smoke detectors. The unit has three relay switch outputs (NO or NC) to give different alarms. One is for mail function on the system. This will give alarm if any of the valves or smoke detectors disconnects, if the backup battery is running empty, if the mains water pressure drops under 2.5 bar, if the manual ball valve is closed, and if the system in any way feel it is not operational. The other two outputs are for alarming if smoke occurs only and if smoke and heat has been detected and the system activates.

The Electrical Control Unit can be monitored either by BUS, USB or LAN connection. A program can on request be delivered where all conditions can be overviewed from a computer including the temperatures at the different valves. Another feature with the program is that it is possible to program the different valve thermocouples to detect fires on different parameters. As the thermocouples need both a minimum temperature and rise of heat, these two can be set to the values which fit the application. For instance the system could be set to require higher temperatures in kitchen, where you have heaters and ovens, and in sleeping rooms the parameters be set much lower.

Model BB deviates from other residential systems as it is constructed to have a fast reaction time and have a very localized fire protection, limiting the actuation of nozzles as much as possible, limiting the water damages as well.

Installing the Wall panels

Together with the metal panels with integrated pipes come special wall brackets, which are simple to screw onto the wall. To install the Panels simply push the panels onto the brackets and the system is in place.



Water design

As the system can operate on mains water supply the limit of the zone sizes is the water flow the mains can supply. To design the optimal system it can be recommended to measure the capacity in the actual building. Often it will be somewhere between 15-30l/min is normal residential buildings.

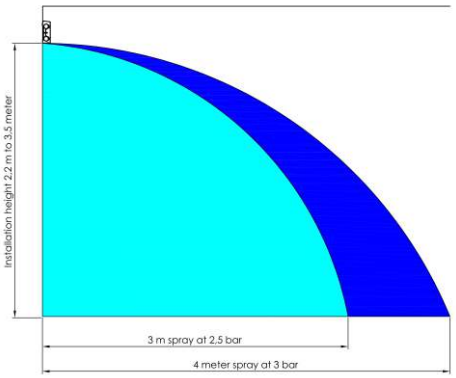
They way to design the maximum zone size is by using the below schedule which shows flow rates with different pressures and with different numbers of nozzle in one pipe line with 1 meter spacing:

Technical data

	Pressure		
	2,5 Bar	3 Bar	3,5 Bar
1 nozzle	1,9 l/min	2,1 l/min	2,2 l /min
2 nozzles	3,8 l/min	4,2 l/min	4,5 l /min
3 nozzles	5,7 l/min	6,2 l/min	6,7 l /min
4 nozzles	7,6 l/min	8,3 l/min	9,0 l /min
5 nozzles	9,5 l/min	10,4 l/min	11,2 l /min
6 nozzles	11,4 l/min	12,5 l/min	13,5 l /min
7 nozzles	13,3 l/min	14,6 l/min	15,7 l /min
8 nozzles	15,2 l/min	16,6 l/min	18,0 l /min
9 nozzles	17,1 l/min	18,7 l/min	20,2 l /min

Spray pattern

The length of the water mist spray coming from the nozzle depend on the pressure applied to the nozzle. Below drawing shows the length of the spray with different pressures:



Caution

The Residential Home Protection System Model BB contains several electrical components as well as actuation parts containing glass bulbs and should therefore be handled with care as no to damage the system.

Contact

For further information on FIRE KILL™ products, please contact our sales department at Sales@vidfirekill.com