

Using Automist® to improve fire safety in social housing.



Plumis

Social housing has
distinct fire safety challenges.

Vulnerable residents in particular
have complex needs which
can change over time.

Practical, targeted adaptations
to suit individuals and their
homes can have an immediate
impact, and bring peace of
mind to residents and housing
providers alike.

‘Prescriptive regulation and guidance are not helpful in designing and building complex buildings, especially in an environment where building technology and practices continue to evolve, and will prevent those undertaking building work from taking responsibility for their actions... An outcomes-based framework requires people who are part of the system to be competent, to think for themselves rather than blindly following guidance, and to understand their responsibilities to deliver and maintain safety and integrity throughout the life cycle of a building.’

Dame Judith Hackitt

The need for change

01

Residents in social housing include a wide range of people with disparate needs. On-site support may not be available, and people's needs inevitably change as they age.

Studies also show that the people most at risk from unintentional death in domestic fires are the most vulnerable groups in society – the elderly, disabled and those unable to escape easily from a fire. The most common cause of death in fire-related fatalities in 2017/18 was 'overcome by gas or smoke'.

A major fire safety challenge for social housing providers is to adapt provision to specifically protect the most vulnerable, against a background of constant individual and regulatory change.

We developed the award-winning Automist® mist suppression system to address the need for adaptable, performance-led fire safety, with benefits including rapid, low-disruption installation, demonstrable reliability, and use of the normal water supply.

Automist's unique design helps to ensure fire safety strategies can keep up to date with rapid changes in risk and dwelling use.

See Fire Safety Journal study on unintentional dwelling fires in London [here](#)

See UK Home Office Report on fires attended by fire and rescue services in England [here](#)

AUTOMIST INSTALLATIONS

Lambeth Council: Automist was installed in 11 sheltered housing schemes. As the system connects to the existing water supply, it is cost effective to retrofit, minimising disruption to residents and the fabric of the building. Automist can be fitted on a flat-by-flat basis, so protection can be targeted to the most vulnerable first.

Swindon Borough Council: introduced Automist in some of their 'pathway homes' to improve fire protection for residents with limited mobility. The system was selected for the level of protection it provides, but also because it can be retrofitted quickly and easily.

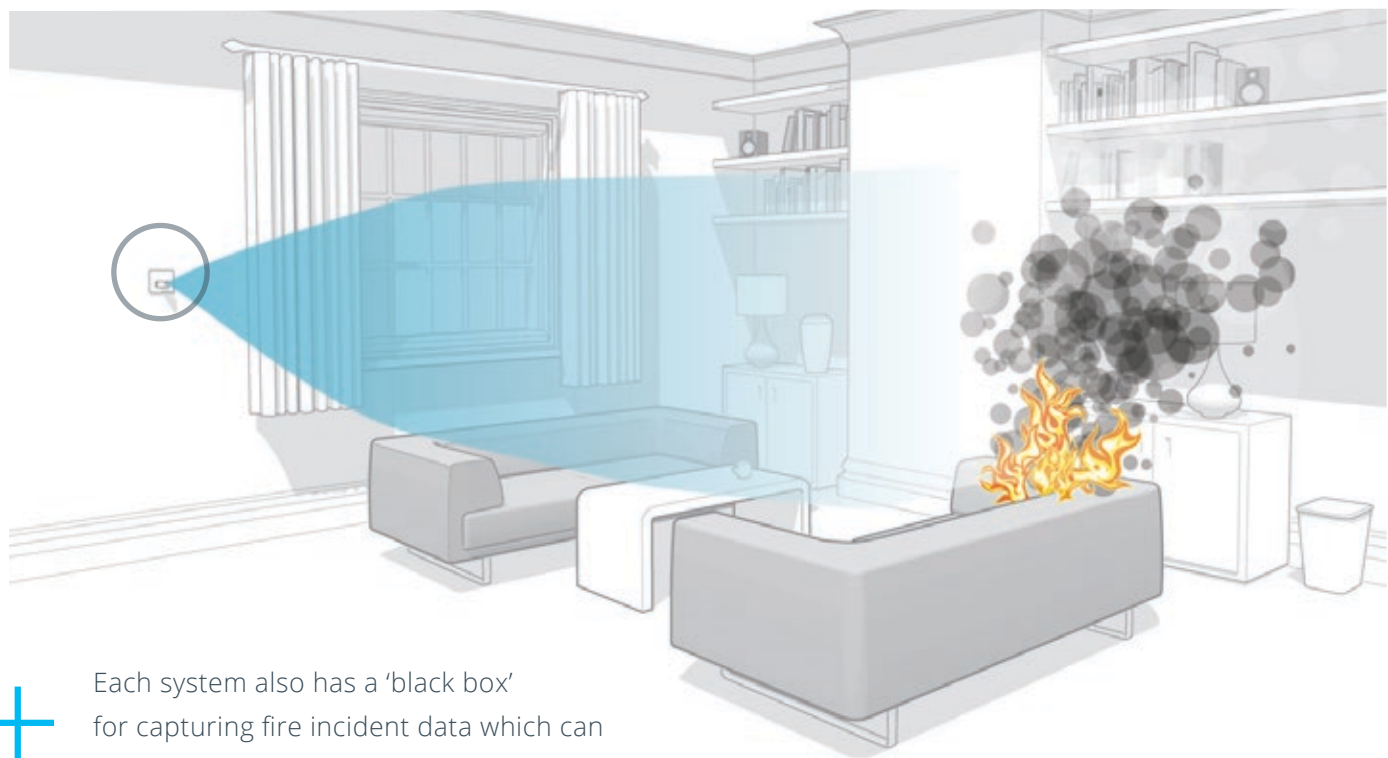


What is Automist Smartscan Hydra®?

02

Fire sprinklers have remained fundamentally unchanged since they were invented in the 19th Century. We developed Automist® because we believed they could be better: operate faster, be more reliable and cause less water damage.

Automist spray heads are wall-installed and can target specific areas. Once activated the high-pressure pump, drives mains water through the unique nozzle unit, quickly directing a dense fog into the location of the fire.



+ Each system also has a ‘black box’ for capturing fire incident data which can be very useful during an insurance claim.

| Traditional residential fire sprinklers | Automist® |
|--|--|
| Disruptive installation | Easy to retrofit |
| Consequential water damage | Low-impact misting action |
| Need for water supply upgrade | Works on existing water supply |
| Ceiling installation | Wall installation |
| Asbestos disturbance in older buildings | No ceiling disturbance |
| Slow responsiveness, especially in large areas | Rapid, targeted response |
| Reliability of activation assumed | Real life fire response testable |
| Problematic for hidden, electrical & oil fires | Small droplets better for hidden, electrical & oil fires |

The Automist® system enables social landlords to provide a targeted approach to fire safety: it can be installed on a flat-by-flat basis, to prioritise vulnerable individuals identified by a fire risk assessment.

Automist® is trusted in both the UK and US with more than 10,000 installations and can be used in the same residential applications as traditional sprinklers. It has been independently, third party, tested by Exova Warrington Fire to confirm it meets the performance requirements of BS 8458 2015, as validated by BSi Verification Certificate VC 712581.



The spray heads only scan if triggered by a detector in the room. The sensor must confirm a temperature threshold before discharging the flow of mist.



Why is Automist a breakthrough alternative?

03

With fire safety, every second counts. The earlier active fire suppression systems (AFSS) initiate, the smaller the size of the fire. The smaller the fire, the easier it is to suppress or extinguish, minimising exposure to smoke, heat and toxic gases.

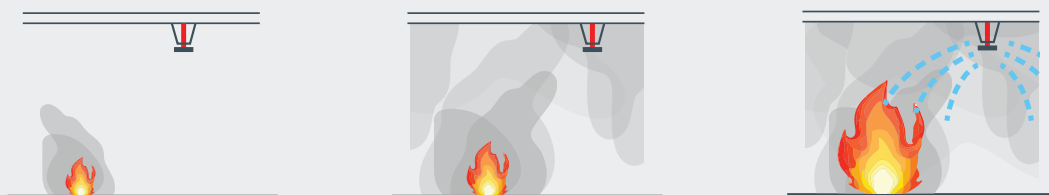
Traditionally, most residential sprinklers are fitted with 3mm glass bulbs with a nominal operating temperature of 57°C. The size and location of the fire have a big impact on the operation of the sprinkler. This issue is magnified in large compartments where the fire growth rate is slow.

Automist® is different: it raises an alarm at the earliest possible time, triggered by a combined heat and smoke detector.

Tests have shown Automist® can address a fire two minutes before a glass bulb sprinkler system has operated.

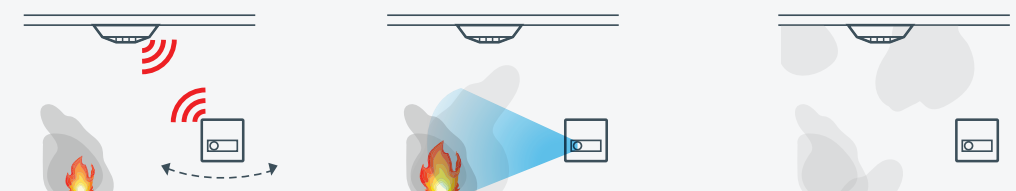
This is crucial, as every second counts, particularly in the room of fire origin for vulnerable people. We want to limit their exposure to toxic gases.

GLASS BULB SPRINKLER



Toxic gas build-up

AUTOMIST®



Early detection
Scan for origin of fire
Alarm sounds

Deploy watermist
Mist sprayed towards fire

Fire suppressed
Minimised smoke and water damage

Up to 2 minutes

Fire incident timeline

The watermist advantage

04

Watermist has several advantages over water in its large gravity applied droplet form, including:

- Uses less of water
- Less water damage
- Greater suitability for electrical, fat or oil fires

Water in its large gravity applied droplet form is only recommended for class A fires, involving organic solid materials such as wood, cloth, paper, plastics, coal.

It is not recommended for use on electrical fires, burning fat or oil. Studies show that although glass bulb sprinklers provide suppression eventually on oil fires, they create some hazards for occupants in the immediate vicinity.

Watermist is capable of tackling all common domestic fires, including class A, B, C and F type fires, as well as fires involving electrical equipment. The droplets are so small that they have no adverse effect on burning liquids and fats, and minimise the chance of electrification.

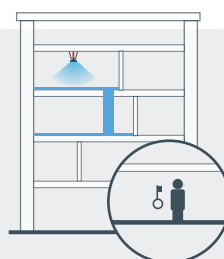
Small droplets can also be drawn into the turbulence caused by the fire and entrained into the fire plume. Therefore watermist is generally more effective on concealed fires which are shielded from the nozzle and, for example, contained within a cabinet, under a table, or in a tumble dryer.

GLASS BULB SPRINKLER

60
litres per
min



Water flowing



Maintenance
arrives with key

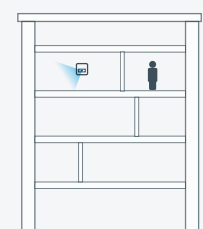


Maintenance
shuts main valve

Time
Up to 30 mins

AUTOMIST™

6
litres per
min



Mist emitted



Override button

Minimised
water
damage

Product attributes

The nature of Automist® means it can be customised to the specific requirements of the dwelling and its occupants as follows:

05

1. Layout design and spray head location

Installation layout designs are verified automatically with a custom layout tool and commissioning verification service to ensure they meet the Plumis guidelines. The layout tool considers mitigating the chance of obstructing the head by only allowing placement in areas where they are very unlikely to be obstructed (e.g. next to light switches). Our specification rules assume the worst case scenario that the visibility is reduced on large open walls. We also introduce redundancy in larger rooms (i.e. covered by a second head).

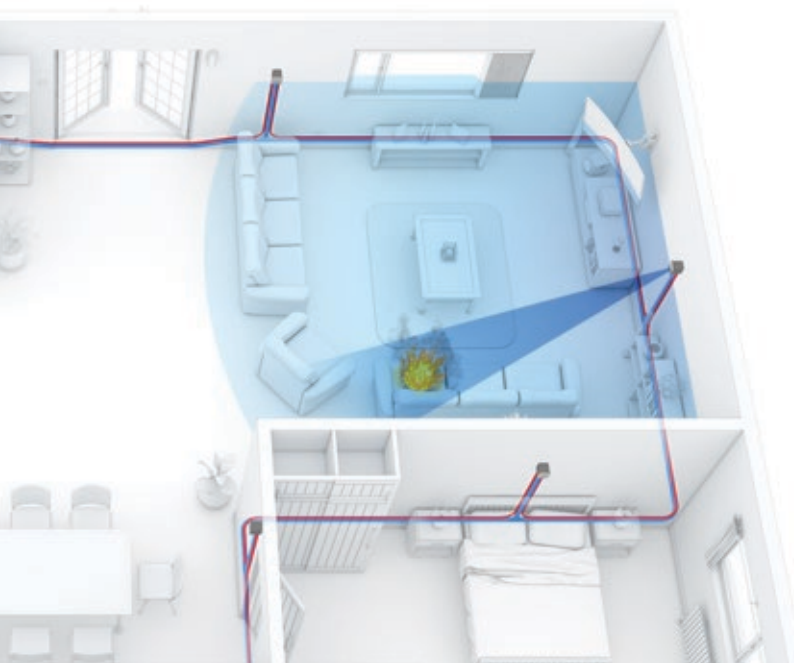
2. Routing and protection of pipework

All fire testing of the system carried out to obtain our third-party approvals was completed using the worst-case scenario, with the maximum specifiable 50m of hose length to fill. The system is easy to install partly thanks to the use of flexible high-pressure hose which does not need to go through the ceiling.

The unique spray head is subtly mounted on a sidewall, so it can even be used in rooms with decorative ceiling roses, and cornices.

In older homes, ceilings can contain asbestos, because it was commonly used in Artex until the mid-1980s. Automist avoids the expensive disposal and air quality test required for the removal of asbestos.

For retrofit, we can also use fire-rated MDF with fire sealant to box in pipe work.



3. Space required for the pump

The pump is 365 mm (height) by 240 mm (depth) by 181 mm (width) and weighs 7.0 kg. The pump should be installed with a clearance of 100 mm around the pump.



4. Power supply

Automist® is powered by a positive displacement pump and has different requirements to glass bulb sprinkler pumps. For example, our pump is not required to churn over time as part of the maintenance schedule. You do not have to run them periodically in order to prevent them from jamming.

Automist® is powered from an independent circuit which is permanent and shielded from prepay meters.

5. Cost-effectiveness

Automist® is often cheaper to retrofit than glass bulb sprinklers, as each Automist® system can be self-contained in each flat, using the existing water supply to ensure flow reliability.

This compares favourably with a centralised residential system with a tank and pump room.

Each individual dwelling can be retrofitted on a priority need or availability basis, without the need for collective disruption to residents.

This can be done as part of a refurbishment or maintenance program, following a fire risk assessment.

It can also be done to address the individual needs of particularly vulnerable residents. So, for example, if you do a series of person centred fire risk assessments and identify residents at particular risk, they can be targeted with active fire suppression first.



6. Detection

We use multisensor smoke detectors which act independently and alongside any existing early warning system in the flat, including existing building-wide detection systems.

Multisensor detectors are recognised as good detectors for general use, but are also more sensitive than optical detectors to fast-burning, flaming fires – including liquid fires.

Multisensor smoke detectors are the detector of choice for areas where the fire risk is likely to include heat at an early stage in the development of the fire. They combine increased reliability of detection with high immunity to false alarms.

These alarms act as an initiation device, and Automist® will only scan when they activate. Our system only operates if it confirms the appearance of a fast-growing fire.

7. Water supply

The minimum guaranteed standard for water supply in the UK at the boundary of a property set by the Office of Water Services (OFWAT) is 1 bar pressure and 9 litres per minute (lpm) flow. These Levels of Service exist to protect the drinking water supply.

Automist consumes less water than a power shower (5.6 lpm, 1 bar), which means it can be connected to a dwelling's existing water supply.

8. Access for servicing

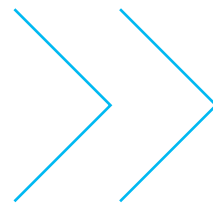
The Automist® controller can be installed within the property, or externally in a service cupboard. It can indicate the presence of a fault, and be checked by maintenance staff periodically.

We advise that our maintenance process should feed into the normal annual fire strategy routine for the accommodation.

Commissioning entails a full test, from detection to spray head activation, which replicates the system's response to a fire.

The spray heads are activated as part of the system's regular maintenance service.

Discharging water is the only way to be sure a sprinkler system will operate when called upon, rather than inferring that it works.



Future-proofing
The activation of
Automist is
controlled by an
intelligent algorithm,
optimised by a
growing database
of over 150 fire tests
and real-life activation
data collection.

Visit www.plumis.co.uk or
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