automist®
SMARTSCAN HYDRA

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 includes 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 self-evacuate 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 sprinkler to address the need for adaptable, performance-led fire safety, with benefits including rapid, low-disruption installation, demonstrable reliability, and use of 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.

USE CASE EXAMPLES

Exeter City Council: A vulnerable resident had set fire to his flat three times, posing serious risk to himself, other residents and the property. Automist® was installed and a fourth arson attempt prevented, despite the resident deliberately trying to damage the Automist® heads.

Runnymede Council: a 16-storey tower block needed sprinkler retrofitting with minimum disruption to tenants. After consultation with Surrey Fire & Rescue Service, Automist® was chosen for being easier to retrofit and using less water. Wall-mounting also made it easier to avoid asbestos.

See Fire Safety Journal study on unintentional dwelling fires in London here

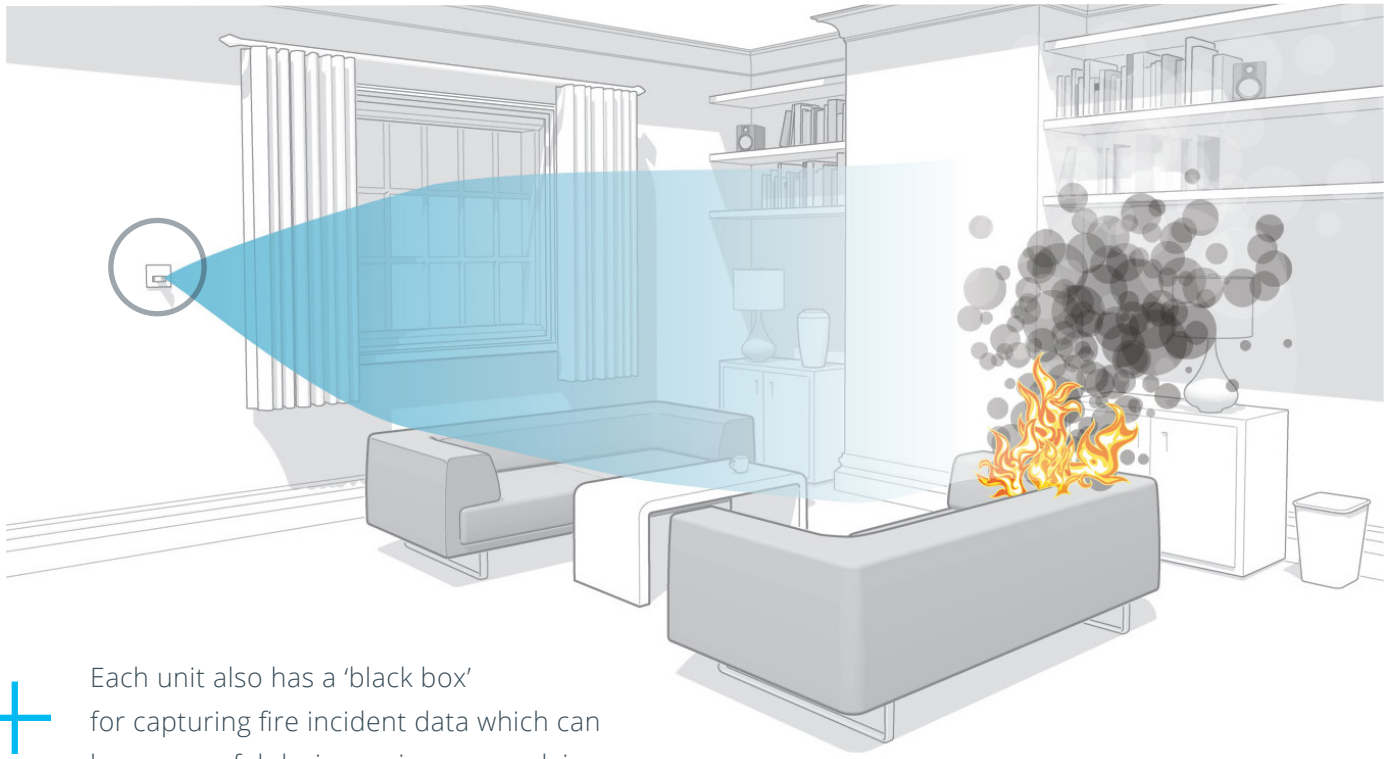
See UK Home Office Report on fires attended by fire and rescue services in England here

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 unit also has a 'black box' for capturing fire incident data which can be very useful during an insurance claim.

Traditional residential fire sprinklers	Automist® fire sprinklers
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 councils 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 over 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 and confirmed as compliant to Approved Doc B, as per Clause 0.18.

It is deemed to be acceptable as a code-compliant automatic water fire suppression system (AFSS) and described in an LABC Registered Detail (EW534) and a BSI Verification Certificate (VC 712581).

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Our 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

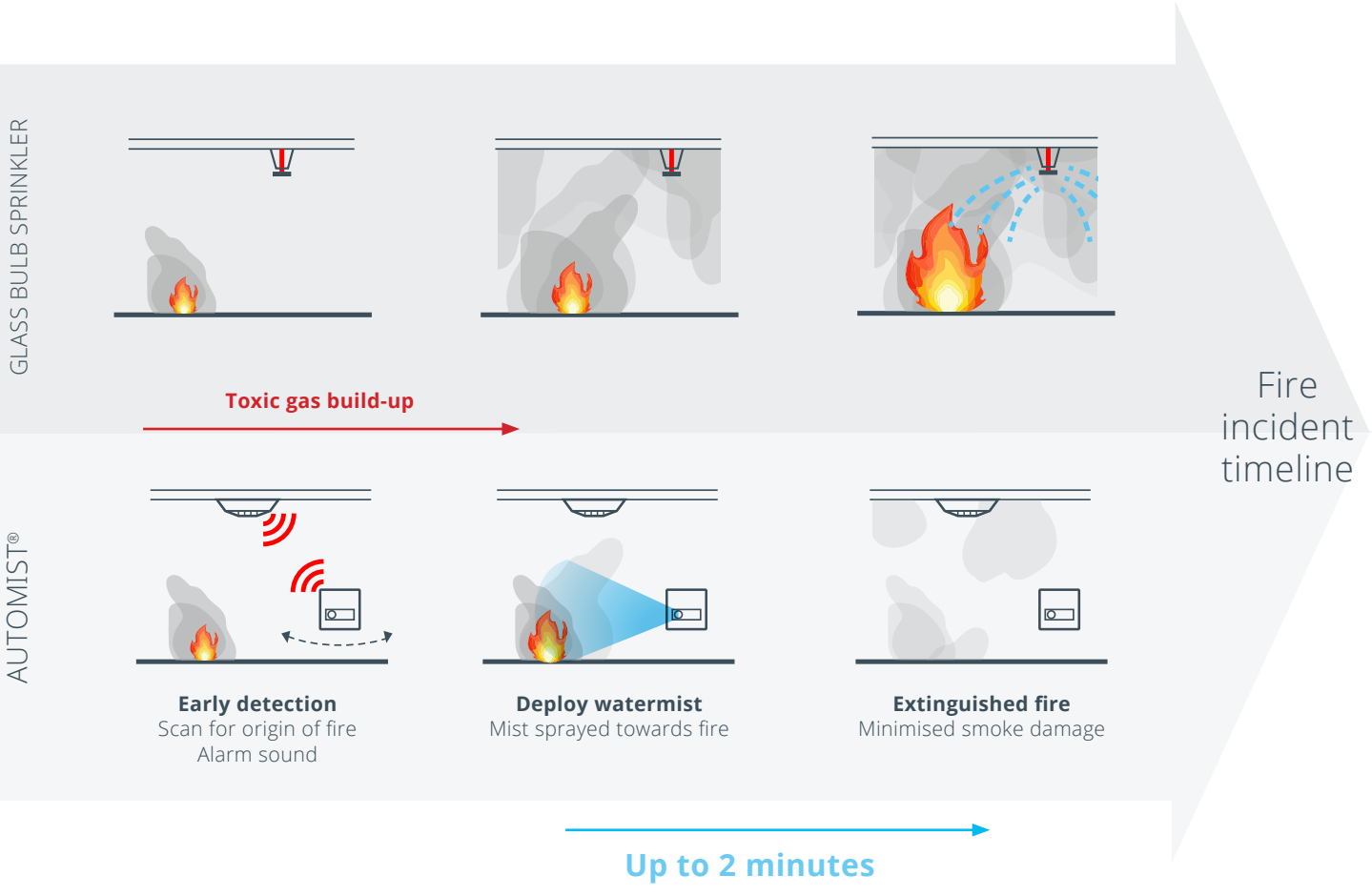
With fire safety, every second counts. The earlier active fire suppression systems (AFSS) initiate, the smaller the size of the fire. The smaller the fire, the easier it is to extinguish and minimise exposure to smoke, heat and toxic gases.

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.



The watermist advantage

04

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

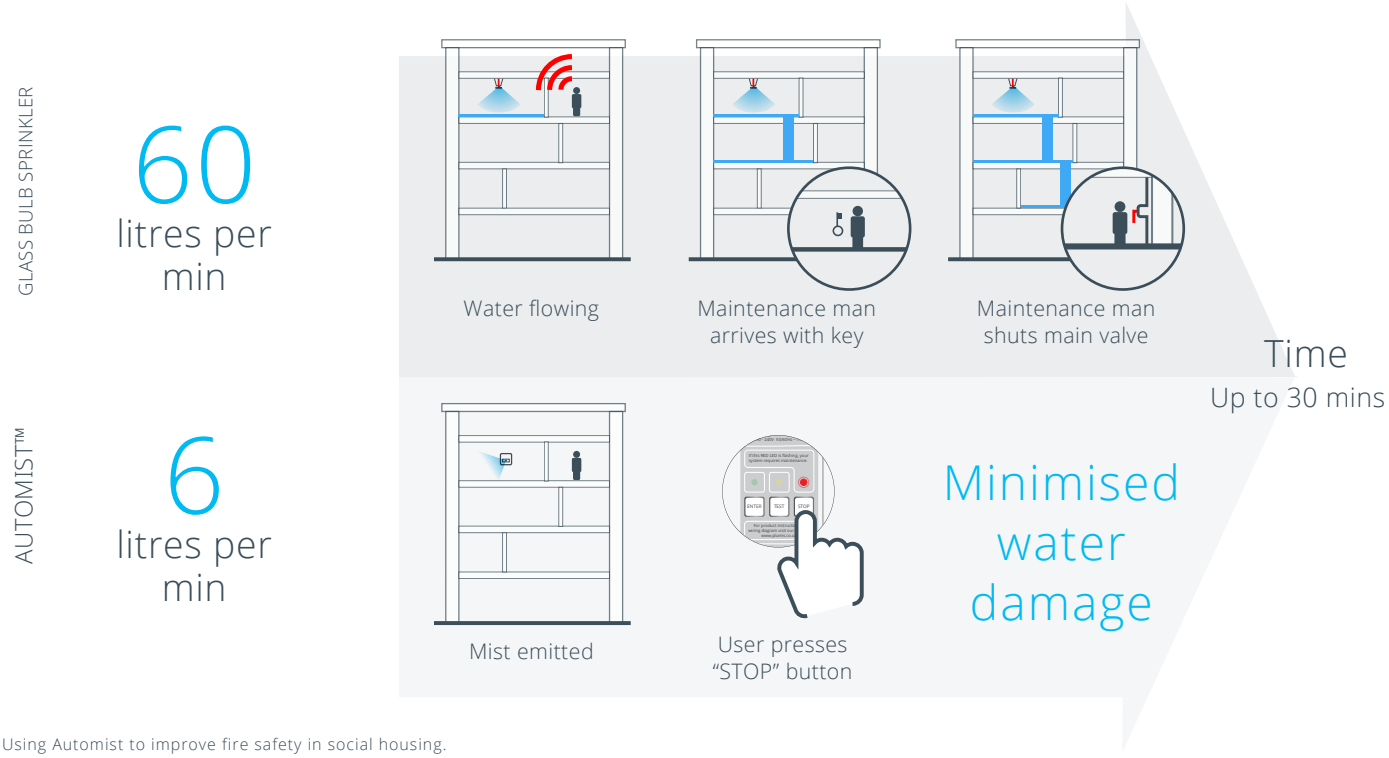
- Lower quantity of water
- Less water damage
- Greater suitability for electrical, fat or oil fires

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.



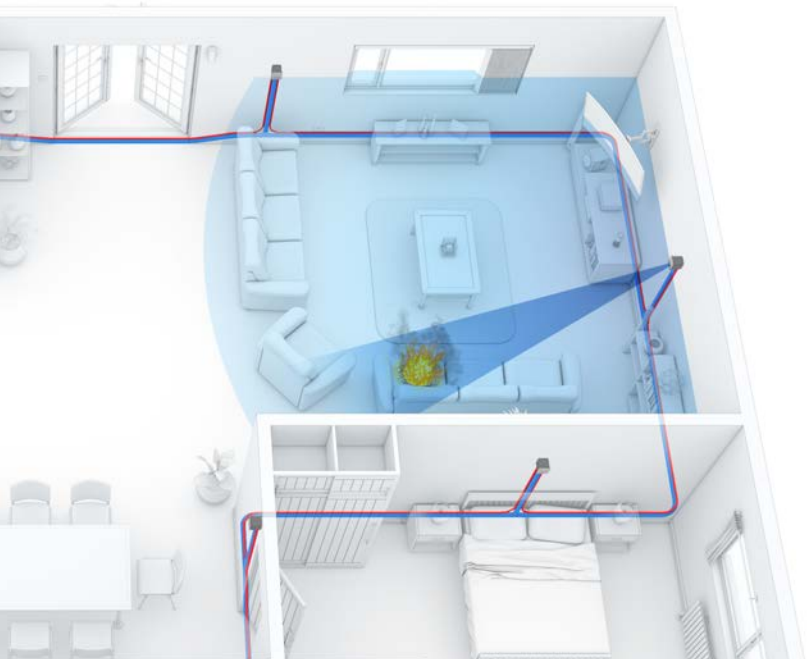
Product attributes

The nature of Automist® means it can be customised to the specific requirements of the dwelling and its tenants 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 our 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

The installation of 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 individual needs of particularly vulnerable residents. So, for example, if you do a series of fire risk assessments and learn that all the vulnerable people on the third floor, you can target them with active fire suppression.

6. Detection

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

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

Multisensory 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 standards for water supply in the UK at the boundary of the 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

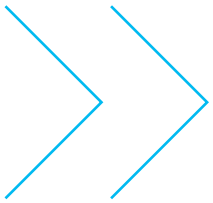
The Automist® controller can be installed within the property, or externally to the flat in a service cupboard. It can indicate the presence of a fault, and be checked by maintenance staff periodically.

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
contact us to learn more about Automist

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