

This certificate is valid for Building Regulations & associated technical guidance in force on the date of registration and for the regulations in the countries indicated

Plumis Automist 'Smartsan Hydra'

Description of Product

This is an assessment of the Plumis Automist multiroom Smartsan Hydra targeted fire suppression system. The system utilises multiple water nozzle spray heads connected to a single pump which is capable of discharging water mist spray effectively cooling and suppressing the fire.

Please consult the 'Conditions of Certificate' and 'Non-Regulatory Information' sections to see if the system is acceptable for use on sites covered by LABC Warranty.



Key Factors Assessed

- ☐ Safety in case of Fire
- ☐ Safety in Use
- ☐ Durability serviceability and identification

Validity

This certificate was first issued on 22nd June 2018 and is valid until 18th March 2022.

Issue Dated 18th March 2021

Scope of Registration

The system operates when fire is detected by the Plumis multi-sensor detector. This causes all the linked spray heads to scan the room, the temperature in the room is measured by the infrared sensor which registers exceptionally high temperatures. All heads registering high temperatures are compared to select the spray head which has the best view of the fire. The selected spray head locks onto the fire location and pump activation takes place. Mains water is driven through the unique nozzle unit directing a dense fog into the location of the fire. The fire is saturated with mist spray suppressing the fire.

Watermist uses fine droplets that evaporate at the base of the fire to extract heat, cooling the fire and displacing oxygen from the fire zone. This results in fire control and suppression.

Nozzle heads are typically installed on the wall 1400mm-1450mm above the floor. Coverage is typically within a 6m radius with a 180 degree spray pattern. Sufficient heads must be installed to cover the whole room taking account of obstructions and room configuration. Electrical supply to equipment should be in fire rated cabling typically FP200.

The system is intended to be used as an alternative to residential sprinkler systems. The system allows multiple heads to be connected to a single pump. Fire suppression can be controlled from a single nozzle head.

Each installation must be carried out by Plumis authorised installers who will specify, install, commission and maintain the Automist Smartscan system in accordance with the Plumis Installation and Maintenance Manual. The design must take into account the individual circumstances of the installation including issues such as room obstructions, which will impact on the effectiveness of the watermist spray, nozzle locations and any individual circumstances which might prejudice the system installation.

Typical System components include but are not limited to the following:

- Plumis multi-sensor detector(s)
- Automist Smartscan Head(s)
- High pressure outlet hose
- Testing point
- Automist controller and pump unit
- Stainless steel hose
- Filter
- WRAS approved check valve
- Data Cable

The capability of the system has been independently tested by Exova Warrington Fire in accordance with BS 8458:2015 Annex C. The system may be used as an automatic water fire suppression system for life safety in both domestic and residential occupancies subject to limitations listed in the design documents referred to and in the Conditions of the Certificate below.

The system coverage is limited in use to those specific situations identified in Approved Document B (fire safety) volume 1: Dwellings, 2019 edition incorporating 2020 amendments and Table 2 of BS 9991:2015 Fire Safety in the Design management and use of residential buildings-code of practice.

Conditions of Certificate

The system must be designed, installed and maintained by a Plumis authorised Installer in accordance with the most up to date Plumis Automist Smartsan Design, Installation, Operation and Maintenance (DIOM) Manual.

The system is limited in use to those specific situations identified in Table 2 of BS 9991; 2015 'Fire Safety in the design, management and use of residential buildings - code of practice' and Approved Document B (fire safety) volume 1: Dwellings, 2019 edition incorporating 2020 amendments and in Wales Approved Documents B (fire safety) volume 1: Dwellinghouses and volume 2 buildings other than dwellinghouses, 2006 edition incorporating 2010, 2013, 2016, 2017 and 2020 amendments.

Limits on application where new residential accommodation is created, based on building height:

- a) AD 'B' Fire Safety; Volume 1: Dwellings (2019 edition incorporating 2020 amendments) requires that flats with a floor >11m above ground level are to be fitted with a sprinkler system in accordance with BS 9251. ADB does however permit alternative approaches providing the overall level of safety is not lower than that which the Approved Document provides. Fire safety engineering may also provide an alternative approach. It will be necessary for the designer to demonstrate that the proposed building, fitted with an AWFSS, offers an equivalent level of fire safety compared with a similar building fitted with a sprinkler system meeting the requirements of BS 9251. This registration in itself does not attempt to demonstrate that level of equivalence.
- b) BS 9991:2015 Fire Safety in the design, management and use of residential buildings – Code of practice – limits the use of automatic water fire suppression systems (AWFSS) and states that they cannot be used in the design of residential buildings which have a floor height more than 30m^(a) above external ground level (see BS 9991: 2015 Table 2).
- c) Note table 2 in BS 9991 considers that a Water mist system conforming to BS DD 8458-1 (now BS 8458:2015) is not applicable in the following provision of AWFSS:
 - i. Extended travel distances in common corridors.
 - ii. Increased travel distance within cluster flats.
 - iii. Buildings over 30m^(a)
 - iv. Reduction in periods of fire resistance.
 - v. External Fire Spread and doubling of unprotected areas.
 - vi. Where buildings are not provided with fire mains.
 - vii. Increased hose distances from a fire- fighting shaft.
 - viii. Flats in atria buildings.
 - ix. Protecting the base of an atrium or ancillary accommodation.
 - x. Balcony escape where smoke-retarding construction is provided to an atrium.
 - xi. Balcony escape where no construction is provided between a balcony and an atrium.

Note:

- (a) In buildings containing flats, and which have a storey more than 11m above ground level, the guidance contained in ADB Volume 1 requires the installation of a life safety sprinkler system throughout the building or separated part. Consequently, the use of suppression systems other than sprinklers, to satisfy requirement B3(3)(b), should be carefully considered utilising fire engineering principles.

BS 8458: 2015 'Fixed fire protection systems - Residential and domestic watermist systems - Code of practice for design and installation' gives guidance on enhanced performance measures including but not limited to the following: Increased duration / resilience of water supplies, arrangements to maintain system integrity during maintenance and repair, backup power, additional pumps to provide redundancy, remote monitoring of critical systems, automatic test facilities and the installation of a fire and rescue service inlet.

LABC considers that this registration lists the special circumstances in clause 4.6 of BS8458: 2015 that are not covered by this certificate and as such further advice should be sought:

4.6 Special circumstances

In some circumstances, enhanced performance, reliability and resilience arrangements should be provided, if an assessment shows them to be necessary. Where appropriate, the designer should consult the relevant AHJ(s).

NOTE 1 Examples of such arrangements include:

- *extended duration of water supply;*
- *making water supplies more robust, such as by the provision of redundancy in the pumping arrangements, back-up electrical supplies, or a fire service infill connection to a stored water tank;*
- *increasing the design discharge density or design assumed maximum area of operation (AMAO).*

NOTE 2 Situations where this might be necessary include:

- *dwelling with a fire load greater than that which would normally be found in a residential or domestic living room, kitchen or bedroom, or if the fire hazard is greater than that of a conventional residential or domestic occupancy;*
- *buildings where the time for fire-fighters to commence fire-fighting in the fire compartment might exceed the duration of water supply of the expected category of system, e.g. buildings over 45 m in height or complex buildings;*
- *older buildings with hidden voids and/or where compartmentation might not meet current standards;*
- *buildings with atria or where a risk assessment shows that the spread of fire could involve two or more enclosed volumetric spaces;*
- *buildings with adjacent areas not protected by an automatic fire suppression system;*
- *buildings housing vulnerable people (see Annex B);*
- *buildings with fire engineered design solutions;*
- *mixed use buildings (see Note to 4.1);*
- *premises providing secure accommodation, asylum centres or similar premises (specialist nozzles are available for institutional situations where ligature or malicious tampering are a concern).*

Design limits are detailed in the most up to date Plumis Automist Smartscan Design, Installation, Operation and Maintenance (DIOM) Manual.

These include the limits of application based on fire tests identified in Table 3 of BS 8458:2015 'Fixed Fire Protection Systems - Residential and Domestic Watermist Systems - Code of Practice for Design and Installation'.

The fire testing carried out by Exova Warrington identified the following fire test limits:

- Domestic Buildings – room size 80m² and ceiling height limit 3.5m.
- Residential Buildings – room size 80m² and ceiling height limit 3.5m.

A comprehensive fire engineering assessment would be needed to justify installations where these limits are exceeded.

The maximum total length of high-pressure hoses is 60m. The maximum allowable hose with a nominal diameter of 1/4" is 20m, and maximum allowable hose with a nominal diameter of 5/16" is 40m when used in combination. The two hose types can be used in combination if the total length does not exceed the 60m limit. If a 5/16" only installation is made, the maximum hose length is of 50m.

When used as a direct replacement for a sprinkler system, the extent of watermist coverage should include all parts of the dwelling with the possible exception of areas without a fire risk such as bathrooms (fitted with a door) with a floor area <5m², cupboards and very small spaces (fitted with a door) with a floor area <2m², non-communicating attached buildings, ceiling voids and uninhabited roof voids as identified in clause 6.4 of BS 8458:2015 and rooms or spaces where the narrowest dimension is <= 1m, where the walls and ceilings are covered with materials that are non-combustible or of limited combustibility.

The system may be fed direct from the mains. The design will include recommendations for water pressure, flow and duration typically 6 l / minute of flow at 1 bar pressure. The mains pressure must be checked before installation in line with clauses 6.8.4.1 and 2 of BS 8458:2015 and be verified as suitable for the intended installation as part of the pre-installation checklist.

Installation must be carried out by suitably trained and competent individuals or by one of the manufacturers authorised installers.

Only components approved by Plumis may be utilised in the system.

The installed system must be subject to servicing as advised by the Plumis. Annual maintenance must be carried out by an authorised Plumis contractor.

All other requirements of Approved Document B Fire Safety or BS9991 2015 relating to fire safety measures includes for example smoke detection, passive fire protection, smoke ventilation must be fully complied with to ensure adequate safety in the event of fire.

LABC consider that, Automist 'Smartscan Hydra' will meet the functional requirements of the Building Regulations (listed below) if the criteria detailed in this certificate are met;



The Building Regulations 2010 (as amended) England & Wales

Please refer to the individual Regulations below.

The Building Regulations 2010 (as amended) England



AD B (2019 edition)
2020 as amended

Fire Safety

Note:

When following the recommendations of the following guidance documents:

Approved Document B (fire safety) volume 1: Dwellings, 2019 edition incorporating 2020 amendments, BS 9991:2015 - Fire safety in the design, management and use of residential buildings: code of practice and BS 8458:-2015 'Fixed Fire Protection Systems - Residential and Domestic Watermist Systems - Code of Practice for Design and Installation'.

Regulation 7(1) (2013 edition)
2018 as amended

Materials and workmanship

Note:

The system is acceptable when installed, commissioned and maintained in accordance with the manufacturers recommendations and the documentation referenced in 'Supporting Documentation' below.



The Building Regulations 2010 (as amended) Wales

The Building Regulations in Wales were amended in 2016 and have guidance for sprinklers in residential purpose groups and therefore any applications in Wales will need a specific proposal for Regulation 37A and 37B accordingly.



The Building (Scotland) Regulations 2004 (as amended)

If you would like to discuss a specific use of the system in Scotland it will require an additional assessment under the Scottish Building Regulations and accordingly you should contact the LABSS STAS Administrator at www.labss.org.

Non-Regulatory Information



LABC Warranty

The system has not been assessed by LABC Warranty.

Supporting Documentation

Exova Warringtonfire Test to BS 8458: 2015 Annex 'C' 'Method of measuring the capability of a Watermist System to control a Fire - Room fire test for Watermist Systems with Automatic Nozzles' Document reference: 396489 Dated 23rd April 2018

BS 8458 2015 'Fixed Fire Protection Systems - Residential and Domestic Watermist Systems - Code of Practice for Design and Installation'

BS 9991; 2015 'Fire Safety in the design, management and use of residential buildings - code of practice'

Plumis Automist Smartscan® Hydra Design, Installation, Operation and Maintenance (DIOM) Manual - Version 2.00.1

Plumis LABC Hydra Validation tests on 24th March 2018

ISO 9001 2015 Design Manufacture and Supply of Watermist Systems

Items that should be provided in conjunction with the LABC Assured certificate as part of an Application to determine compliance:

1. Manufacturers detailed design for all elements of the watermist system.
2. Manufacturers latest Design Manual.
3. Floor plans drawn to scale showing the individual design and position of relevant components such as the pump unit, water supplies and nozzle locations.
4. A full fire engineering assessment is required where flats are created and the building has a floor >11m in accordance with Part B Fire Safety Volume 1 (2019 edition incorporating 2020 amendments)

Items that should be provided in conjunction with the LABC Assured certificate as part of the Inspection regime to determine compliance:

1. Manufacturers Installation and commissioning guide from the authorised supplier prior to the issue of any Building Regulation Certificate under Regulation 17 and any related information under Regulation 38. (where applicable)

Items that should be provided in conjunction with the LABC Assured certificate as part of a Completion to determine compliance:

1. Evidence of adequate system commissioning
2. Evidence of adequate electrical certification / commissioning
3. Water supplier declaration / approval where applicable

Contact Information

Plumis Ltd

Unit 4

Phoenix Trading Estate

Bilton Rd

Perivale

UB6 7DZ

Tel: 0207 871 3899

Email: william@plumis.com

Website: www.plumis.co.uk