AHJ SUBMISSION PACKAGE

Automist Water Mist Fire Protection System

For Use in One- and Two-Family Residential Dwellings

Per NFPA 750 – Standard on Water Mist Fire Protection Systems

1. Executive Summary

This submission package provides the Authority Having Jurisdiction (AHJ) with the documentation needed to evaluate and approve the use of the Automist water mist fire protection system in one- and two-family residential dwellings.

The Automist system is a UL-listed fire protection system, manufactured by Plumis, that uses water mist technology to provide targeted fire suppression using significantly less water than traditional residential sprinkler systems.

The system is designed and installed in accordance with NFPA 750, Standard on Water Mist Fire Protection Systems, and is third-party certified by UL under UL 2167A, Outline of Investigation for Targeting Water Mist System Units for One- and Two-Family Dwellings for Fire Protection Service. UL 2167A was developed specifically for wall-mounted, targeted water mist system units intended for one- and two-family dwellings and manufactured homes.

Automist is installed in accordance with the manufacturer's Design, Installation, Operation and Maintenance Manual (DIOM). This package includes the relevant certifications, listings, technical data, applicable code references, and supporting materials needed to support a thorough and efficient plan review.

2. System Overview

2.1 What Is Automist?

Automist is a UL-listed water mist fire protection system that provides automatic fire suppression for residential occupancies.

Unlike conventional residential sprinkler systems, which typically rely on ceiling-mounted pendent or sidewall sprinkler heads discharging larger volumes of water, Automist uses a wall-mounted spray head to deliver a fine water mist directly toward the fire source.

2.2 Key Differentiators

- Wall-Mounted Configuration: Automist uses a wall-mounted spray head rather than a ceiling-mounted sprinkler head. Full-scale UL fire testing under UL 2167A has demonstrated that Automist meets fire performance criteria comparable to those applied to residential sprinklers under UL 199 — preventing flashover in the room of fire origin and maintaining tenable conditions for occupant escape — while using significantly less water, thereby meeting the life-safety intent of both NFPA 13D and NFPA 750.
- Minimal Water Usage: Automist operates at significantly lower flow rates than traditional residential sprinklers. This can reduce water damage, lower demand on the domestic water supply, and avoid the need for water infrastructure upgrades in many applications.
- Targeted Fire Suppression: Rather than flooding a room, the system uses an electronic spray head that scans and directs mist toward the detected heat source, providing focused suppression.

- Connects to Existing Domestic Water Supply: The system's pump discharges approximately 9 litres per minute, or 2.37 gallons per minute, from a single spray head during operation. Because the system discharges from only the single spray head best positioned to attack the fire the required water demand is substantially lower than a conventional residential sprinkler design. The site water supply and pump must exceed the calculated system demand by at least 10 percent per NFPA 750 §12.5.2.2(2); minimum supply pressure and flow requirements are specified in the DIOM.
- AI-Based Thermal Detection: Automist uses thermal imaging and embedded machine learning, combined with smoke detection, to locate and target a fire. All processing is performed locally by the system. Automist does not rely on an internet connection or a separate fire alarm control panel to operate.

3. Applicable Codes and Standards

The Automist system is designed and installed under the framework of the codes, standards, listing documents, and manufacturer instructions listed below. The primary governing standard is NFPA 750, which is the nationally recognized standard for water mist fire protection systems.

Code / Standard	Relevance
NFPA 750	Standard on Water Mist Fire Protection Systems. Primary standard governing water mist system design, installation, inspection, testing, and maintenance. NFPA 750 relies on listed water mist equipment or systems that have demonstrated performance through fire testing as part of a listing process. See §3.1.
NFPA 13D	Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes. NFPA 13D is not used for the design of the Automist system. It is referenced only because the life-safety purpose of NFPA 13D §1.2.2 and NFPA 750 §1.2.3 (echoed for dwellings in §10.3.2) is equivalent, which is the basis on which an AHJ may accept Automist as an alternative to an NFPA 13D sprinkler system. See §3.2.
IBC / IRC	International Building Code / International Residential Code. Locally adopted building codes that establish when fire protection is required and provide the administrative pathway for approval. See §3.3.
UL 2167A	Outline of Investigation for Targeting Water Mist System Units for One- and Two-Family Dwellings for Fire Protection Service. This is the UL certification document under which the Automist system unit and components are evaluated for targeted residential water mist fire protection service. See §3.4.
Automist DIOM	Design, Installation, Operation and Maintenance Manual. The manufacturer's comprehensive manual governing system design parameters, installation requirements, commissioning procedures,

	operation, inspection, testing, and maintenance. The DIOM is the controlling manufacturer installation document for Automist. See §3.5.
Local Amendments	Any locally adopted amendments, administrative provisions, or AHJ-specific requirements that govern plan review and acceptance of alternative fire protection systems. See §3.6.

3.1 NFPA 750

NFPA 750 is the nationally recognized standard that governs the design, installation, testing, and maintenance of water mist fire protection systems. NFPA 750 applies to water mist systems generally and provides the installation framework for systems that use water mist to control, suppress, or extinguish fires. The Automist system falls within this framework as a listed water mist system that has been evaluated and certified under UL 2167A for targeted residential water mist fire protection service.

NFPA 750 requires water mist systems to be designed and installed in accordance with the manufacturer's listed design and installation documentation. For Automist, that document is the Design, Installation, Operation and Maintenance Manual (DIOM). All Automist installations submitted for building code approval must comply with the DIOM, which is included as part of this submission package.

The following table summarizes how the Automist system addresses the key requirements of NFPA 750.

NFPA 750 Clause	Requirement Summary	Automist Compliance
3.3.25.2	Definition: Electronically Operated Automatic Water Mist Nozzle	Automist's nozzles are normally closed and operated by electrical energy initiated and supplied by fire detection and control equipment.
3.3.27	Scope and Application of NFPA 750	Automist is a fire suppression system demonstrated to meet the performance requirements of its UL listing and compliant to NFPA 750.
6.1.1	All components must be listed for their intended use	All critical components are included within the system's UL 2167A Listing.
6.6.1	Nozzles shall be listed	Nozzles are included within the system's UL 2167A Listing.
8.1.1	Listed materials and devices shall be installed in accordance with their listing	Full details contained within the DIOM.
8.1.2	Installed in accordance with the manufacturer's system design and installation manual	Full details are contained within the DIOM.

9.1.1	Fire Test Protocols	Fire-tested to UL 2167A for residential hazards, meeting NFPA intent.
10.3.2	Scope for one- and two-family dwellings	UL 2167A is the Outline of Investigation for Targeting Water Mist System Units for One- and Two-Family Dwellings for Fire Protection Service.
10.3.2.6.9.3	Warning sign at the main shutoff valve where a common supply pipe serves more than one dwelling unit	Site-level requirement. Where applicable, the installer provides the prescribed warning sign; see the project-specific checklist in §10.
12.5.1.1	Water quality must be appropriate for system	Automist uses potable water from the domestic supply, consistent with NFPA water quality standards.
12.5.2.2(2)	Pump capacity to exceed calculated system demand by at least 10 percent	Site-level requirement. The installer verifies the available water supply and pump exceed the calculated demand (2.37 gpm) by at least 10 percent; see §10.
13.2	Hydraulic Calculation Documentation	Automist is a precalculated system. A full explanation of the hydraulic calculations can be found on pages 59–60 of the DIOM.
13.4.3.1	Documentation	Full details are contained within the DIOM.
15.1.2	Maintenance and inspection procedures required	System includes automated self-checks and user alerts; maintenance guidance provided in the DIOM.

3.2 Relationship to NFPA 13D

Automist is not a sprinkler system and is not designed or installed under NFPA 13D, Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes.

NFPA 13D is relevant to this submission only with respect to purpose. The purpose statement in NFPA 13D §1.2.2 and the corresponding provisions of NFPA 750 (§1.2.3 and §10.3.2) are materially the same: to provide a system that aids in the detection and control of residential fires, prevents flashover in the room of fire origin, and improves the chance for occupants to escape or be evacuated. The UL equivalence letter included in Section 6 supports the AHJ's evaluation of Automist as an alternative system by documenting the alignment between the residential life-safety purpose of NFPA 13D and the residential water mist provisions of NFPA 750.

This equivalence is recognized in code and confirmed by UL Solutions. In a letter dated February 13, 2026, UL Solutions confirmed that the purpose statements of NFPA 13D and NFPA 750 for

residential occupancies are equivalent, and that "an AHJ seeking to determine whether a targeted water mist system can be used as an alternative to an NFPA 13D sprinkler system can consider their purpose to meet the requirements of life safety in these standards as equivalent." The letter further notes that IFC §903 and §904.11 indicate that automatic water mist systems can be permitted by the AHJ in applications consistent with the applicable listing.

3.3 International Fire Code (IFC) and Residential Code (IRC)

International Fire Code §903.1.1 permits alternative automatic fire-extinguishing systems complying with Section 904 in place of automatic sprinkler protection where recognized by the applicable standard and approved by the fire code official. IFC §904.11 specifically permits automatic water mist systems in applications consistent with the applicable listing, designed and installed in accordance with NFPA 750 and the manufacturer's instructions.

These provisions appear in the IFC because water mist fire protection is established practice in commercial and industrial occupancies. Equivalent provisions do not yet appear in the International Residential Code (IRC) — not because residential water mist systems are prohibited, but because they have not yet reached the level of common practice that typically precedes codification in the residential code. As listed residential water mist systems such as Automist become more widely adopted, corresponding provisions are expected to follow in the IRC.

3.4 UL 2167A

UL 2167A is the Outline of Investigation for Targeting Water Mist System Units for One- and Two-Family Dwellings for Fire Protection Service, published by UL LLC (Edition 1, 8 July 2024). It is a new standard developed specifically for electronically controlled targeting water mist systems such as Automist, where the wall-mounted spray head is normally unpressurised and discharges a targeted water mist to control fires in one- and two-family dwellings and manufactured homes.

System units listed under UL 2167A are intended to be installed in accordance with NFPA 750 (Standard on Water Mist Fire Protection Systems). The standard establishes the test protocol and component-level requirements — covering the spray head, valves, pump, motor, controller and detection components — against which the complete system is evaluated.

Automist is the world's first targeted residential water mist fire protection system to achieve third-party certification under UL 2167A.

3.5 Design, Installation, Operation & Maintenance (DIOM) Manual

Plumis publishes the Automist Design, Installation, Operation & Maintenance (DIOM) Manual, which serves as the manufacturer’s listed design and installation documentation required by NFPA 750 and referenced by the IFC/IBC where the AHJ accepts the system as an alternative means of compliance. The DIOM defines spacing, coverage, water supply, electrical, commissioning, and maintenance requirements specific to Automist and governs installation in the absence of a prescriptive listed-system standard.

3.6 Local Amendments

State, county, and municipal jurisdictions frequently amend the model codes referenced above. AHJs should confirm any local amendments to NFPA 13D, the IRC, the IFC, or the IBC that may

affect the acceptability of a UL 2167A-listed targeted water mist system, including amendments addressing alternative means and methods, water supply, and inspection and testing.

4. Certifications and Listings

The Automist system holds the third-party certification and listing documentation listed below. These documents are provided to support AHJ review and independent verification.

Original certificates and verification links are included so that the AHJ can confirm the system's certification status directly through UL.

4.1 UL Certification

- The Plumis Automist system is UL certified to UL 2167A, Outline of Investigation for Targeting Water Mist System Units for One- and Two-Family Dwellings for Fire Protection Service.
- The UL certification covers the complete Automist system including the spray head, pump unit, controller, and detection components. It is listed under UL Product iQ file EX29276, product category Water Mist Residential System Units – Targeted Discharge, product code ZDSE. The listed model numbers are AP09 and AP12.
- The UL listing confirms that the system has been tested under full-scale fire conditions and meets the performance criteria required.

4.2 Verification Links

The following links allow the AHJ to independently verify the system's certifications and review detailed technical information:

- UL Certification: PDF (link)
- UL Listing details under File Number EX29276 on the UL Product iQ database: Web link

5. Precedent AHJ Approvals

The Automist system has been reviewed and approved by multiple Authorities Having Jurisdiction across the United States. These precedent approvals demonstrate that other code officials have independently evaluated the system, its certifications, and its compliance with NFPA 750 and have found it acceptable for residential use.

Notable jurisdictions that have approved the Automist system throughout the United States. You can view a selection of case studies online here:

https://automist.us/projects/

Note to Reviewer: Precedent approvals from peer jurisdictions are provided for informational purposes and to demonstrate that the system has undergone successful review elsewhere. They are not intended to substitute for this AHJ's independent evaluation.

6. Technical Documentation Included

The following technical documents are included with or referenced in this submission package. Each document serves a specific purpose in the AHJ's review and is organized for efficient evaluation.

Document	Description	Format
DIOM	Design, Installation, Operation and Maintenance Manual – Complete manufacturer's manual required per NFPA 750	PDF (link)
UL Certificate	UL certification document confirming listing to UL 2167A	PDF (link)
UL Listing	UL online listing for independent verification	Web Link
Jensen Hughes Equivalency Report	Third-party clause-by-clause comparison of NFPA 13D, NFPA 750 and Automist (Project 1KOM8U001, Rev. 0, 22 June 2026), confirming both standards share the same life-safety purpose.	PDF (link)
Jensen Hughes Fire Test Judgement Report	Third-party engineering judgement (Rev. 0, 31 July 2026) on Baltic Fire Laboratory testing at 18 ft ceiling height, confirming results comparable to the UL 2167A 8 ft tests.	PDF (link)
UL Equivalence Letter	UL Solutions letter (Feb 13, 2026) confirming that NFPA 13D and NFPA 750 share equivalent life-safety purpose, supporting AHJ acceptance of Automist as an alternative to NFPA 13D sprinklers under IFC §§903.1.1 and 904.11	PDF (link)
ISO 9001 Certificate	Evidence that Plumis (the manufacturer) maintains ISO 9001:2015 certified quality management systems – ensuring consistent, high-quality product design and manufacturing.	PDF (link)
UL 2167A	UL 2167A standard — Outline of Investigation for Targeting Water Mist System Units for One- and Two-Family Dwellings for Fire Protection Service (UL LLC, Edition 1, 8 July 2024)	Web Link
Cut Sheet – SH12	Spray head component specifications	PDF (link)
Cut Sheet – CT03	Controller unit specifications	PDF (link)
Cut Sheet – AP12	Pump specifications	PDF (link)
Cut Sheet – DT03	Smoke sensor specifications	PDF (link)
Cut Sheet - HP Hose	High Pressure Hose specifications	PDF (link)
Cut Sheet – Sensor Cable	Sensor Cable specifications	PDF (link)

Peer-Reviewed Research	Spearpoint, M., Hopkin, C., Muhammad, Y. & Makant, W. (2022) "Replicating the activation time of electronically controlled watermist system nozzles in B-RISK," Fire Safety Journal, 130, 103592. Independent enclosure fire experiments demonstrated that the Automist system activated 2.0–13.7 times faster than concealed residential sprinkler heads.	PDF (link)

7. Frequently Asked Questions

The following questions and answers address technical topics that commonly arise during AHJ review of the Automist system. They are provided to support an efficient and informed evaluation.

7.1 What does UL 2167A certification evaluate?

UL 2167A is a comprehensive standard that evaluates the complete Automist system unit — including the spray head, pump, motor, controller, valves, strainer, and smoke detection components — as an integrated assembly, not as individual parts in isolation. The certification programme covers three broad areas. First, fire performance: the system must pass 17 defined full-scale fire tests (UL 2167A §23, Table 23.1) across a range of residential fire scenarios including upholstered furniture fires, residential fuel package fires, cooking oil fires, fires with physical obstructions between the nozzle and the fuel package, and tests in both small-room and large-room configurations. During each test, the system must limit ceiling gas temperatures to no more than 600°F (316°C), keep the maximum temperature at occupant height (5 ft 3 in above floor) from exceeding 200°F (93°C) at more than one of the two measurement locations, limit sustained exposure above 130°F (54°C) for any continuous 2-minute period to no more than one of the two occupant-height locations, keep occupant-height temperatures (5 ft 3 in above floor) below 200°F (93°C) at more than one location, limit sustained exposure above 130°F (54°C) at occupant level, and keep ceiling material temperatures below 500°F (260°C) — all while operating at the system's minimum design pressure and accounting for real-world water delivery delay. Second, mechanical and hydraulic reliability: pumps must deliver rated flow and pressure and complete a 24-hour continuous endurance test at rated conditions without performance degradation or physical damage (§20.2), and all pressurized components must withstand hydrostatic testing at twice the maximum system pressure without leakage or rupture (§21). Third, long-term environmental durability: all polymeric functional parts must pass 180-day accelerated aging tests — both air-oven aging at 212°F (§22.1) and water immersion aging at 188°F (§22.2) — and still meet hydraulic performance and hydrostatic strength requirements after aging. In addition, control and detection components are tested to UL 985 (Household Fire Warning System Units), UL 864 (Fire Alarm Control Units), and UL 268 (Smoke Detectors), and every production unit undergoes hydraulic performance and hydrostatic leakage testing before leaving the factory (§24). UL 2167A was developed specifically for electronically controlled, wall-mounted targeting water mist systems intended for one- and two-family dwellings and manufactured homes, and it requires systems to be installed in accordance with NFPA 750. The full standard is available from the UL Standards Shop.

7.2 What happens if an electronic component fails?

The Automist system has been evaluated as a complete system under UL 2167A, which includes the spray head, pump, controller, and detection components. The UL listing process evaluates component reliability, durability, and performance as a unit. In addition, Automist incorporates automated self-monitoring and diagnostic checks that alert the homeowner to any system fault. This is a capability that conventional NFPA 13D sprinkler systems do not have; a 13D system can be rendered inoperable by a closed control valve, frozen pipe, or internal corrosion without any notification to the occupant.

7.3 Does a residential water mist system require a dedicated fire service line?

For one- and two-family dwellings, NFPA 13D permits residential fire sprinkler systems to be supplied from the domestic water service and allows multipurpose piping, where the sprinkler piping forms part of the cold-water distribution system. In other words, NFPA 13D does not require a separate dedicated fire service connection for residential sprinkler systems. The most common concern is continuity of fire protection if the utility disconnects domestic water service for non-payment. Several jurisdictions have addressed this by recognizing that a dwelling without water service is not fit for normal occupancy, since toilets, sinks, and other plumbing fixtures cannot function. Philadelphia's Code Bulletin 1001 addresses this directly, stating that lack of water supply renders a residential property unfit for habitation. Philadelphia therefore permits a multipurpose connection without requiring a dedicated fire line, and similar conclusions have been reached in Orlando, Florida and Boulder, Colorado.

7.4 What are the electrical supply and backup power requirements for Automist?

All electrical supplies to the Automist pump and controller must be installed in accordance with local jurisdiction requirements. Automist must be installed on a dedicated circuit, separate from the protected room and its contents; the fire detection and alarm system may share this circuit, as all components must remain powered in the event of a fire. For one- and two-family dwellings, NFPA 750 §10.3.2.3.1 provides that system equipment designed and installed in accordance with §10.3.2 is not required to comply with the general requirements of NFPA 750 Chapters 6 through 9 — including the fire pump and standby power provisions of those chapters — unless required by the listing for the intended use. Accordingly, neither NFPA 13D nor NFPA 750 imposes a standby power requirement on pumps serving one- and two-family dwellings. Each Automist controller comes equipped with a default battery backup providing 24 hours of standby power for the controller's detection, alarm, display, and sounder functions; however, this backup powers the controller only and will not run the pump. On loss of AC power the controller displays the battery voltage and beeps intermittently to alert the occupant, and when the battery runs low the spray heads move from the flush position to a locked inward position to give a visual indication that a fault is present. To enhance robustness where the power supply is unreliable or where the AHJ requires it, a UPS system can be added to power the pump during an outage — each Automist pump draws approximately 11.4A at 240V AC/60Hz (2,400W) and will run for 30 minutes, exceeding the 10-minute pump flow duration referenced in NFPA 750 §10.1.2.1.1. The controller output can also be configured to signal third-party equipment when AC power is lost. Full electrical installation requirements are detailed in the DIOM.

7.5 Who can install Automist in the United States?

Automist must be installed by an authorized installer who has completed Plumis' training and assessment programme. In many jurisdictions, contractors must also hold a C16 Fire Protection License or equivalent qualification to install fire suppression systems in compliance with local building codes. Training consists of two parts: an online course, which can be completed in as little as a day through Plumis' Learning Management System (usa-plumis.talentlms.com), followed by a hands-on practical assessment conducted either at a Plumis training location, via an in-person visit from a Plumis representative, or through a virtual assessment. Upon passing, installers receive a Technical Certificate valid for two years, which can be submitted to the AHJ as proof of competency and authorization to install Automist systems. A step-by-step guide is available at How to Become an Automist Installer (PDF link).

8. Video Resources

The following short video resources are provided to supplement the written documentation. Each video is approximately one minute in length and is designed to give the reviewer a clear understanding of the system's operation, appearance, and installation process.

Video Link	Description
How the System Works	Overview of the Automist system's operating principles and fire response sequence.
Installed Appearance	Shows the system as it appears once installed in a residential setting, demonstrating its low-profile, unobtrusive design.
Installation Process	Walkthrough of the physical installation procedure, including wall mounting, plumbing connections, and commissioning.
UL Fire Test 15	Full-scale UL fire test demonstrating the system's performance in suppressing an actual residential fire scenario. This test validates the system's listing to UL 2167A.

9. AHJ Training and Education

Plumis offers a dedicated online training course for AHJ personnel to become familiar with the Automist system, its code basis, installation requirements, and inspection procedures. This training is provided at no cost and is intended to support AHJ staff in conducting informed plan reviews and field inspections.

AHJ Training Portal: https://usa-plumis.talentlms.com/catalog/info/id:159

Plumis encourages all reviewing officials and inspectors to complete this training prior to or during the plan review process. The training covers system fundamentals, applicable codes, installation verification checkpoints, and frequently asked questions from other jurisdictions.

10. Project-Specific Submission Checklist

Use the following checklist to verify that all required components are included:

☐	Cover letter identifying the project
☐	This AHJ Submission Package document (complete with project-specific Section 9)
☐	Automist project-specific floor plans showing spray head and equipment locations
☐	Authorized Installer Certificate (Example PDF)
☐	Permit application and any jurisdiction-specific forms
☐	Verification that the available water supply and pump exceed the calculated system flow demand (2.37 gpm) by at least 10 percent, per NFPA 750 §12.5.2.2(2), including the minimum supply pressure and flow specified in the DIOM
☐	Where a common supply pipe serves more than one dwelling unit: warning sign provided at the main shutoff valve per NFPA 750 §10.3.2.6.9.3, and 5 gpm added to system demand per §10.3.2.6.9.2 where flow into the domestic system is not prevented

11. Request for Approval

Based on the documentation, certifications, listings, and technical information provided in this submission package, we respectfully request that the Authority Having Jurisdiction review and approve the use of the Automist water mist fire protection system for the project identified on the cover page of this submission.

The Automist system is a UL-listed, NFPA 750-compliant water mist fire protection system that has been approved by multiple AHJs across the United States. The system meets or exceeds the fire protection performance objectives established for one- and two-family residential dwellings. Peer-reviewed research (Spearpoint et al., 2022) has demonstrated that the Automist system activates 2.0 to 13.7 times faster than concealed residential sprinkler heads in enclosure fire experiments, directly supporting faster occupant notification and escape.

We welcome the opportunity to meet with AHJ staff, provide additional documentation, or answer any questions that may arise during the review process.

- Website: automist.us
- Technical enquiries: technical.automist@plumis.com