

K21045
SCP09/02
2024/4/18

Specific Certification Program Fire Protection Systems – Application

Watermist System Units for One and Two Family Dwellings –
Residential and Domestic .



Trust
Quality
Progress

Preface

This specific certification program has been accepted by the Kiwa Board of Experts Fire Safety, in which all relevant parties in the field of Fire Protection Systems are represented. The Board of Experts also supervises the certification activities and where necessary requires the evaluation guideline to be revised. All references to Board of Experts in this evaluation guideline pertain to the above mentioned Board of Experts.

This certification program will be used by Kiwa in conjunction with the Kiwa Regulations for Certification within the context of Certification Scheme K21045 "Fire Protection Systems".

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1 Introduction

1.1 General

There is a demand in the market to be able to supply auto watermist systems under a process- and service certificate independently.

An auto watermist system is a system with a fire detection system for use in the residential and small-scale care environment. The objective of the system is to early detect a small-scale fire and automatically extinguish the fire with a watermist system. It primarily covers watermist systems used for life safety, but might also provide property protection .

The system installers would like to supply their installation process and maintenance services with a quality declaration (object certificate) and quality assurance by an independent certification body. This fits within the quality views of European regulations based on ISO 17065. The objective of this SCP is that all systems are installed with certificate

The objective of this specific certification program are to define the:

- scope and the requirements for proper function of these systems but also the limitations in terms of performance and application of the system.
- process steps that are followed for the design, construction and commissioning of the system and the level of quality assurance by the supplier;
- method of supervision by Kiwa - including the sample size and assessment criteria for audit and inspections.

The basics of the process are defined on a valid product certificate with test reports demonstrating both the functional and performance requirements of the auto watermist system. This specific certification program includes all relevant requirements which are employed by Kiwa when dealing with applications.

This specific certification program is a first version and shall be used in context with product certification scheme K21045 "Fire Protection Systems".

1.2 Field of application / scope

The British Standard 8458 gives recommendations for the design, installation, water supplies, commissioning, maintenance and testing of watermist systems with automatic nozzles installed in residential and domestic occupancies up to a maximum ceiling height of 5.5 m. It primarily covers watermist systems used for life safety, but might also provide property protection. The recommendations of this British Standard are also applicable to any addition, extension, repair or other modification to a residential or domestic watermist system. The British Standard does not cover watermist systems in industrial and commercial buildings.

See also chapter 4.4

1.3 Acceptance of test reports provided by the supplier

See TIC scheme K21045.

1.4 Quality declaration

See TIC scheme K21045.

2 Terms and definitions

See TIC scheme K21045.

Because the term dwelling systems is not mentioned in TIC scheme K21045, we refer to the definition dwelling

In law, a dwelling (also known as a residence, abode or domicile) is a self-contained unit of accommodation used by one or more households as a home - such as a house, apartment, mobile home, houseboat, recreational vehicle, or other "substantial" structure.

3 Procedure for granting a Process and Service certificate

See TIC scheme K21045.

4 Supplier process requirements

4.1 General

This chapter contains the requirements that the delivery process shall comply.

4.2 Regulatory requirements

Not applicable.

4.3 Process requirements Services for fire safety systems

The requirements of the delivery process are specified in EN16763 “Services for fire safety systems and security systems”.

4.4 Scope A – Fixed firefighting systems - Watermist Systems – Residential and domestic

The design requirements of these systems are specified in the standard:

- NFPA 750; Standard on Water Mist Fire Protection Systems;
- EN 14972; Fixed firefighting systems - Watermist systems - Design and installation.

The installation requirements of these systems are specified in the standard:

- NFPA 750; Standard on Water Mist Fire Protection Systems;
- EN 14972; Fixed firefighting systems - Watermist systems - Design and installation.

In addition in the BS 8458 “Fixed fire protection systems – Residential and domestic watermist systems – Code of practice for design and installation” applicable for this specific scope.

The maintenance requirements of these systems are specified in the standard:

NFPA 25; Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.

4.4.1 Fire detection for the target nozzle

In this specific application is a fire detection system applicable based on EN54-7 for smoke detectors. If applicable can also other detector principles be used according to the EN54 series.

These detectors are needed to detect and signal a possible start of a fire.

Based on this shall the system have a higher alert level and sense with high frequency the protected compartment.

In addition is the special target nozzle for this application equipped with a heat sensor. This sensor shall determine the activation and duration of the target nozzle and the direction of the target nozzle.

4.4.2 Alarm transmission

This specific application shall be equipped with a fire alarm transmitter based on EN54-21 transmitting alarms and faults to an alarm receiving centre according to EN50518.

5 Testing the performance of the system

5.1 General

This chapter contains the standards with the requirements for testing by Kiwa to determine the performances that the systems have to fulfil.

These tests are necessary if there is no integer information available according to these standards by acceptable approval bodies such as test laboratories fulfilling the requirements of ISO17025 “General requirements for the competence of testing and calibration laboratories”. The accreditation of the testing laboratories shall comply with the agreement of mutual acceptance to be acceptable. The accreditation of the testing laboratories and the reports of these laboratories are verified by Kiwa.

Kiwa shall then execute third party witnessing of these tests according to ISO17065 “Conformity assessment - Requirements for bodies certifying products, processes and services” when no accredited testing labs are available.

Certain testing laboratories are acceptable based on criteria determined by the board of experts Fire Safety. These reports shall be controlled and verified by Kiwa.

5.2 Scope A – Fixed firefighting systems - Watermist Systems

The requirements for testing of these systems are specified in the standard:

- NFPA 750; Standard on Water Mist Fire Protection Systems;
- CEN/TS 14972; Fixed firefighting systems - Watermist systems - Design and installation.

The requirements for maintenance testing of these systems are specified in the standard NFPA 25; Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.

5.2.1 Testing specific for this scope

The initial type tests to determine the scope of the system can be carried out based on the available international standards. A test report and product certificate are the minimum requirements for acceptance of the auto watermist system.

If the testing body is a known party but not accredited specific for this application Kiwa FSS shall investigate the result of the report and if needed require extra information or testing for confirmation of the output in the test report. Kiwa shall provide a verification report in these situations and if needed an witness report.

6 Factory Production Control Fire Protection Components by Kiwa

See TIC- scheme K21045.

7 Inspection of Fire Protection Systems by Kiwa

See TIC- scheme K21045.

8 Marking

8.1 General

See TIC scheme K21045.

8.2 Certification mark

See TIC scheme K21045.

9 Requirements in respect of the quality system

See TIC scheme K21045.

In addition to chapter 9.5 “Requirements of staff for fire protection systems” of the TIC scheme are below the minimal requirements set for this specific application. Staff acting in critical stages of the process need to be qualified according to the model in chapter 3.4 of **EN16763 “Services for fire safety systems and security systems”**. In this scheme following roles are defined: “A” defined for the manager responsible of the total delivery process of the fire repression system and the stages verification and handover; “B” defined for the staff responsible of the planning, design and commissioning process of the fire repression system. “C” defined for the staff responsible of the installation and maintenance process of the fire repression system.

Personnel	Qualification by	Level	Experience	Education	Knowledge of / Certified (Diploma)
Managing board (Role A)	Management	High	1 year within field of application	Management or comparable	EN16763 K21045 -SCP09 DIOM manufacturer
Quality manager (Role A)	Managing board	High	1 year within field of application	Management or comparable	EN16763 K21045 -SCP09 EN 14972-1 NFPA 750 NFPA 25 DIOM manufacturer BS8458 UL2176
Product Trainers application course / Specialist Product owner (Role B)	Responsible manager	High	1 year within field of application	Safety expert - Product specialist	EN16763 K21045 -SCP09 EN 14972-1 NFPA 750 NFPA 25 DIOM manufacturer EN 12845 NEN 2535 NEN 2654 Watermist technic
Design Engineer (Role B)	Responsible manager	Mid	1 year within field of application	Electrical engineering - Mechanical engineering	K21045 -SCP09 EN 14972-1 NFPA 750 NFPA 25 DIOM manufacturer EN 12845 NEN 2535 NEN 2654 Fire detection-Alarm (Diploma) Sprinkler engineer 1 (Diploma) Watermist technic 1 (Diploma)
Installation /maintenance detection employees (Role C)	Responsible manager	Mid	1 year within field of application	Electrical engineering	K21045 -SCP09 EN 14972-1 NFPA 750 NFPA 25 DIOM manufacturer NEN 2535 NEN 2654

Installation/maintenance mechanic employees (Role C)	Quality manager	Mid	1 year within field of application	Mechanical engineering	K21045 -SCP09 EN 14972-1 NFPA 750 NFPA 25 DIOM manufacturer EN 12845
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10 Summary of tests and inspections

See TIC scheme K21045.

Matrix frequency samples inspection

	System	Installation stage	Maintenance stage
A	Watermist systems	1:5	1:15
B	Automatic sprinkler systems	1:10	1:25
C	Gas extinguishing systems	1:10	1:25
D	Oxygen reduction systems	1:5	1:15
E	Aerosol systems	1:10	1:25
F	Powder systems	1:2	1:10
G	Foam systems	1:2	1:10

Note; during a sample inspection, certain activities are to be assessed such as the liquid tightness of a piping system.

In addition of chapter 10.2 of the TIC scheme is the demarcation for inspection of a watermist system determined by the pump of the system.

The product certificate of the system will have to define what 1 system is. For example; if two separate compartments are protected by the auto watermist system and they are supplied the same pump is this to be seen as 1 watermist system for inspection.

Based on the size / compactness of the installations a remote sample inspection is possible.

11 Agreements on the implementation of certification

See TIC scheme K21045.

12 Titles of standards

12.1 Public law rules

See TIC scheme K21045.

12.2 Standards / normative documents

See TIC scheme K21045.

Additional standards used for the development of this standard;

Number	Title	Version*
BS 8458:2015	Fixed fire protection systems - residential and domestic watermist systems - code of practice for design and installation	2015
BS 9991:2015	Fire safety in the design, management and use of residential buildings..	2015
BS 7974:2019	Application of fire safety engineering principles to the design of buildings	2019
UL 2167 (B) <i>Draft</i>	Water Mist System Units for One and Two Family Dwellings for Fire Protection Service	--
UL 2167	UL Standard for safety watermist nozzles for fire protection service	2021
FINAL DRAFT FprEN 14972-4	Fixed firefighting systems - Water mist systems - Part 4: Test protocol for non-storage occupancies for automatic nozzle systems	2023
NFPA13D	Water Mist System Units for One and Two Family Dwellings systems and manufactured homes	2022

*) When no date of issue has been indicated, the latest version of the document is applicable for new systems. Kiwa shall inform the certificate holders about changes in version. For design, installation and maintenance is the version of standard applicable set in the basic design.