
Water Mist is a form of active fire protection that, like all extinguishing technologies, can be effective in the protection of certain, but not all risks.

In the absence of a published British Standard or European Standard with scope relevant to the protection of buildings or contents with this type of system¹, the questions herein are intended to elicit information that could be useful in providing evidence of the “equivalence” of such systems to alternatives where published and recognised national standards do exist.

If requested to do so, please complete one of these forms for each building to be protected by water mist system(s). This form is to be used to capture and record some of the data required to support a claim of “equivalence” and to provide evidence of sound engineering practice. Do not use this form for local application systems (a separate form is available for these systems).

¹ DD (Draft for Development) documents issued by BSI (British Standards Institution) are not to be regarded as British Standards. TS (Technical Specifications) issued by CEN (European Committee for Standardization) are not to be regarded as European Standards

Form: IQ 1

Version 1.0 April 2011

Water Mist Questionnaire: Building Protection

To be completed at the design
and proposal stage of
suppression system planning

Issued by: Ins. Co./Trade Ass/AHJ name in here

NOTE:

Completion of this form neither guarantees system performance nor system acceptance by Ins. Co. / Trade Ass

IMPORTANT NOTICE

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Water Mist Questionnaire – Building Protection

1. Full address(s) of risk(s) to be protected:

2. Roles and responsibilities

2a. Entity responsible for the design of the water mist system

Company or organisation's name

Lead designer's name & job title

Company or organisation's Address

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3. Entity responsible for the installation of the water mist system (if different to question 2a above)	Company or organisation's name	
	Responsible person's name & job title	
	Company or organisation's Address	

4. Description of the water supply, including details of any energy sources required, storage systems, and means to pressurise the water:		
Water source: (please tick)	Town main	
	Stored water	
	Stored water relying on town main infill	
Stored water volume (if applicable)	dm ³	
Town main infill rate (if applicable)	dm ³ /min	
Water supply pressure at commencement of discharge:	Bar	

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6. Water mist component details for critical and key components:	
Component (Make / Model)	Approval details
Pumps:	
Water storage cisterns or vessels:	
Additives:	
Compressed gas supplies:	
Valves:	
Actuators:	
Nozzles (including details of the effective operating pressure range of the nozzle):	
Fire detection means:	
Alarms:	
Pipework and fitting (include details of materials of construction):	
Pipe fixings:	
Other components critical to system function:	

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7 Extent of protection	Delete applicable
7a. Is the property fully protected by water mist?	Yes / No
7b. Are <u>all</u> roof, ceiling and floor voids fully protected?	Yes / No
If the answer to either question is "No", give details of the unprotected spaces at 10h.	

8. If there are any unprotected parts of the property, who has taken the responsibility for the decision not to protect these parts?

9. What is the intended use(s) of the building? (ie, school, factory, warehouse, shop(s), offices, mixed use (specify), etc):

10. In the following sections, please give details of the occupancy of each room or compartment within the property including any unprotected parts: e.g. school class room, office, computer room, atria, laboratory, storeroom, stockrooms or cupboard etc.

Individual room or enclosure description. (Continue on separate sheets if necessary. If separate sheets are used record the document number, title, issue number and date here):	Room dimensions (W x D x H) in m	Protected by Water Mist (delete as appropriate)	Protected by other active suppression systems (delete as appropriate)
		Yes / No	Yes / No
		Yes / No	Yes / No
		Yes / No	Yes / No
		Yes / No	Yes / No
		Yes / No	Yes / No
		Yes / No	Yes / No

a. Identify rooms with storage giving details of the materials, including any packaging, to be stored and the size of the room and contents. If storage is 'unknown' or 'uncontrolled' please list as such and state what assumptions have been made in this respect of this in determining protection requirements. Also provide details of storage height and storage method. (Continue on separate sheets if necessary. If separate sheets are used record the document number, title, issue number and date here).

b. Identify the room that has the largest quantity of combustible materials:	
c. Identify the largest room or compartment volume:	dimensions (W x D x H) in m and Volume in m ³
d. Identify the room or compartment with the highest ceiling	dimensions (W x D x H) in m
e. Which room or compartment has the largest number of water mist nozzles and how many nozzles are there within the identified room or compartment?	
Cross refer to separate sheets or drawings if necessary. If used record the document number, title, issue number and date here:	
f. List and give brief details of all other rooms protected by water mist as specified in 10. (Continue on separate sheets if necessary. If separate sheets are used record the	

document number, title, issue number and date here)

g. Identify any rooms protected by other active fire suppression systems as specified in 10, giving details of protection provided (e.g. sprinklers, fixed gas extinguisher system). (Continue on separate sheets if necessary. If separate sheets are used record the document number, title, issue number and date here)

h. Identify any areas, rooms or voids (including ceiling voids and floor spaces) within the protected property without any form of active protection as specified in 10. Include justification for doing so. (Continue on separate sheets if necessary. If separate sheets are used record the document number, title, issue number and date here)

11a. Provide details of ventilation systems (including smoke ventilation) present in water mist protected rooms or compartments. Will any ventilation system be operational during water mist system operation? Give details of any interlock controls. (Continue on separate sheets if necessary. If separate sheets are used record the document number, title, issue number and date here)

11b. Possible natural ventilation sources. Provide details of doors, windows, shutters, other openings, and controls upon their use.

	Delete as applicable
12. Is any process equipment or machinery being protected by water mist or within the protected space?	Yes / No
If, 'yes', provide a full description and describe any interlocks provided to stop processes, fuel supplies, ventilation, conveyors, rotating machinery or similar features:	

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13. What is the performance objective for the water mist system?	Please tick
Fire control	
Fire suppression	
Fire extinguishment	

NOTE. If the objectives differ in different compartments make this clear. (Continue on separate sheets if necessary. If separate sheets are used record the document number, title, issue number and date here)

14. What is the largest number of water mist nozzles that are assumed to be operating within the property during a fire (assuming a single ignition source)?

Explain how this number has been arrived at if the number of nozzles in any room or compartment exceeds the number assumed to be operating. (Continue on separate sheets if necessary. If separate sheets are used record the document number, title, issue number and date here):

15. What is the duration of effective water discharge for the assumed maximum number of nozzles operating?²

	Please delete as appropriate
16a. System activation. Does the system use thermally activated nozzles (i.e. locally operated fusible element type nozzles) as one of its means of system activation?	Yes / No
16b. Does the system rely on automatic activation by any means other than direct local operation of heads exposed to heat?	Yes / No
16c. Can the system be manually operated	Yes / No
16d. If 'yes' to 16a or 16b provide full details of the control and activation system including the RTI of the detection device. (Continue on separate sheets if necessary. If separate sheets are used record the document number, title, issue number and date here):	

² For pumped systems this might be determined by the size of water supply. For gas pressurised systems this might be the time from actuation until the pressure at the hydraulically least favourable nozzle falls below the pressure at which the system is proven by fire testing (Q22) to fulfil its performance objective (Q13)

17. Identify the nozzles at the most and least hydraulically favourable locations from the water supplies and describe their liquid extinguishing media delivery rate during the discharge period in litres per minute³. (Continue on separate sheets if necessary. If separate sheets are used record the document number, title, issue number and date here):

18. Are any trade-offs / compensatory features proposed as a result of the presence of the system? If so, provide full details. Where part of a Fire Engineered solution please provide details of the Fire Strategy. (Continue on separate sheets if necessary. If separate sheets are used record the document number, title, issue number and date here):

³ For pumped systems a single figure may be supplied for each nozzle. For gas propelled systems the flow profile for each nozzle is required over the effective discharge period.

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19. Provide details of building construction and fire protecting separation. Include details of fire resisting separation between protected and unprotected spaces if present. (Continue on separate sheets if necessary. If separate sheets are used record the document number, title, issue number and date here):

20. Which specification(s) is the system designed to?

21. Who is the provider of the installed system third party certification? (ie Lloyds, LPCB, Warrington, VdS, FM etc)

22. Fire test evidence – please provide the accredited third party test report(s) that

demonstrate the system performance in a representative scenario for all parts of the water mist protected property⁴. (List here by: issuing body, title, date, report number. Please provide copies of reports separately):

	Please delete as appropriate
23. Will the installed system require a written scheme of examination to comply with the pressure system regulations 2000?	Yes / No
23a. If 'yes' to 23, has the system users / owners responsible person been made aware of their responsibilities?	Yes / No
23b. If 'yes' 23a provide details of the competent person(s) certifying the written scheme of examination and undertaking any identified examinations before the system is first used. (Continue on separate sheets if necessary. If separate sheets are used record the document number, title, issue number and date here):	

⁴ With reference to i.e. system operating parameters, scale, the risk protected, obstructions, ceiling height, detection method, detection performance and system performance objective.

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24. Details of all drawings, calculations and documents supplied with this questionnaire which have not already referenced in previous questions above, or that contain additional parts that require consideration. (Continue on separate sheets if necessary. If separate sheets are used record the document number, title, issue number and date here):

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25. Declaration

I am authorised to represent the company identified below (25d) making this submission.
I have supplied full and accurate information as required by this form.

25a. Name (please print)	
25b. Signature	
25c. Date	
25d. Representing (Please print company name)	

Annex A: Minimum supporting documentation which must be supplied with the completed questionnaire.

At least the documentation identified in A1 to A7 shall be provided with this questionnaire. Any drawings shall be at a scale of not less than 100:1:

- A.1 A general specification for the system;
- A.2 A block plan of the premises showing:
 - a) Fire compartments;
 - b) The installation and the occupancy of the protected space;
 - c) The extent of the protection, with details of any unprotected areas or volumes;
 - d) A cross-section of the full height of the building showing the height of the highest nozzle above datum.
 - e) Location and rating of fire boundaries
- A.3 General details of the water supplies, which if dependent on a town main at the time of operation shall include pressure and flow data, with the date and time of the test and a plan of the site.
- A.4 A description of the essential features of the water mist system with descriptions of key components.
- A.5 A statement, declaring whether the system requires a written scheme of examination, complying with the pressure systems regulations 2000 or not.
- A.6 Fire test evidence of system performance pertinent to the described risk
- A.7 Design and operation manual for the watermist system

The following documentation shall be provided to support the questionnaire as part of the design process.

- A.6 A summary schedule, which shall include the following:

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- a) the name of the project;
- b) drawing and document references including issue number, issue dates and titles;
- c) the installation type(s);
- d) control valve(s) details, including nominal diameter, and reference number(s)
- e) the number of nozzles controlled by each control valve; and
- f) the height of highest nozzle controlled by each control valve.

A.7 Layout drawings of the water mist installation(s), the drawings shall include:

- a) the north point indication;
- b) the level of protection provided for each hazard or occupancy;
- c) constructional details of floors, ceilings, roofs, exterior walls separating protected and non-protected areas ;
- d) location of nozzles relative to structural features, particularly those which effect the performance of water mist or which may give rise to shielded fires;
- e) the location and dimensions of concealed floor, roof and ceiling voids;
- f) indication of obstructions such as trunking, stagings, light fittings, heater, suspended open cell ceilings which may adversely influence performance;
- g) water mist nozzles, their fire detecting means and their operating set point;
- h) location and type of control valve sets;
- i) flow alarms, sounders and alarm panel;
- j) pressure switches;
- k) locations and sizes of any subsidiary stop valves;
- l) the drainage slope of the pipework;
- m) the locations of all drain and test valves;

- n) pipework and pipe fitting specifications and materials;
- o) a key to the symbols used on drawings; and
- p) a schedule of water mist nozzles, their fire detection means and the areas they protect.

A.8 Pipe work design

Calculations shall be provided which determine the pipe sizes to be used, the information shall be provided either on purpose designed worksheets or as a computer print-out. The following information shall be provided:

- a) the calculation method or computer programme name;
- b) the date of the data provided;
- c) the internal diameter of all pipes ;
- e) the location and dimensions of concealed floor, roof and ceiling voids;
- f) indication of obstructions such as trunking, stagings, light fittings, heater, suspended open cell ceilings which may adversely influence performance;
- g) water mist nozzles, their fire detecting means and their operating set point;
- h) location and type of control valve sets;
- i) flow alarms, sounders and alarm panel;
- j) pressure switches;
- k) locations and sizes of any subsidiary stop valves;
- l) the drainage slope of the pipework;
- m) the locations of all drain and test valves;
- n) a key to the symbols used on drawings.
- o) a schedule of water mist nozzles, their fire detection means and the areas they protect.

A.9 Water supply drawings

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The drawings shall show the water supplies and the pipework up to the control valves. The position of any stop valves, non-return valves, pressure reducing or controlling devices, water meters and any connections for other services shall be shown.