

**An Overview of BS8489 series
for
Design & Installation of watermist Firefighting
in
Commercial and industrial applications**

Bob Whiteley C. Eng.; F.I.Mech.E.; M.I.Fire E.; B.Tech(Hons)

Chair: BSI Watermist Working Group

Why UK standards for watermist?

- CEN document a TS
- EN standard may be over 3 years away
- CEN agenda did not address UK needs and concerns



Development of BS8489

tyco

*Fire & Integrated
Solutions*

- Draft for Development
- (DD8489: 2006)
- Provisional
- Allows information and experience to be obtained
- Expert group formed to use industry best practice.



Watermist Working Group members



- FSH18/2 + FSH18/6
- Fire Industry Association
- British Automatic Fire Sprinkler Association
- UK Insurers
- Loss Prevention Council
- Factory Mutual
- TG1 - CEN
- TG2 – Domestic & Residential
- TG3 Commercial & Industrial

BS8489

principle requirements -testing

Testing

Specific area within building can be protected by watermist where relevant fire test protocols exist.

Test protocols

Test protocols must be representative of actual conditions, thus:

- Similar fuel
- Comparable compartment volume
- Compartment height is comparable
- Similar ventilation conditions
- Obstructions are representative
- Duration of protection is compatible with the protection needed.

BS8489

principle requirements –testing cont'd

- Desirability of third party testing and certification.
- Test facilities that operate a quality system with watermist in their scope of accreditation.
- Test protocol recognised
- Test lab record published
- Equipment and systems have demonstrated performance
- Equipment and components listed for their intended application

BS8489

principle requirements -testing

- **Successful test results/ test report:**
- **Components and parameters used in tests**
- **Maximum and minimum nozzles heights and spacing**
- **Minimum flows and pressures to be met or exceeded.**
- **Incorporated into manufacturer's design manual to replicated the system as tested.**

BS8489

principle requirements - Protection

- **Local Application:** extinguishing systems designed for object protection with design parameters established by representative fire tests.
- **Volume Protection:** (either open nozzles or automatic nozzles) systems designed for hazards within a volume with design parameters established by representative fire tests.

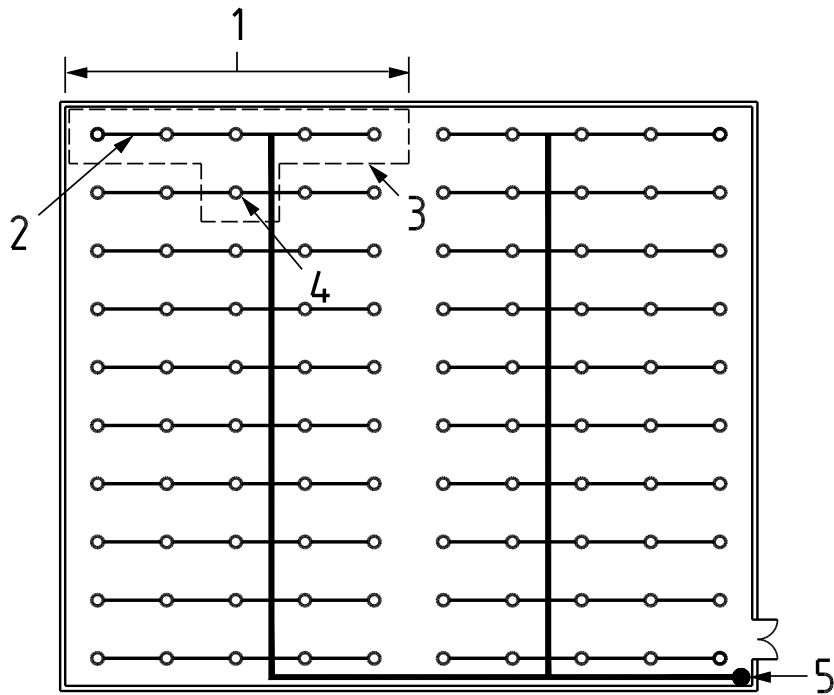
BS8489

principle requirements - duration

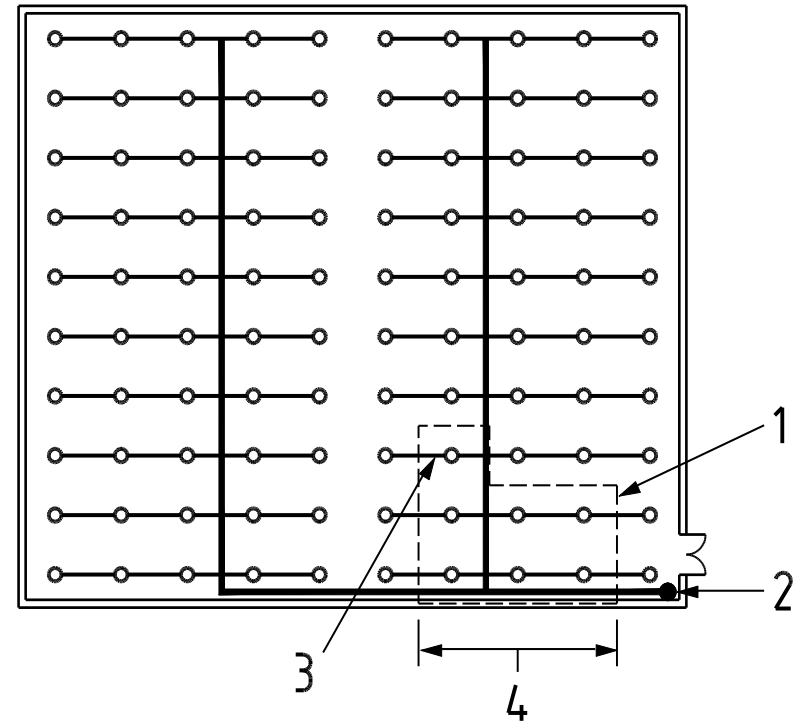
- **Extinguishing systems – 2 times the duration to extinguish and prevent re-ignition as established by test.**
- **Suppression systems:**
 - – to suit hazard with 60 minutes minimum.
 - - automatic nozzle systems flow based upon the most favourable 'Assumed Maximum Area of Operation' (AMAO)
- **System piping – hydraulically designed.**

BS8489 principle requirements -AMAO

Most Unfavourable AMAO



Most Favourable AMAO



BS8489

principle requirements - components

- In accordance with LPS1283/FM5560 or equivalent
- Consider components supported by accredited third party assessment
- Nozzles;
 - - corrosion resistant
 - - permanently marked
 - - open nozzles blockage prevention
 - - automatic nozzles – thermal release per BSEN12259-1 quick response
- Piping:
 - - Stainless steel
 - - Copper
 - - Galvanised steel

BS8489

principle requirements – water supplies

- Capable of supplying both the hydraulically most unfavourable AND the most favourable AMAOs.
- Wholesome/demineralised/deionised/ sweet industrial water
- Towns main
- One or more automatic starting pumpsets
- One or more pressurised cylinders
- Ensure continuity and reliability
- Pump suction tanks > 30% of full capacity -where infill rate is sufficient to meet discharge duration requirements and can be tested.
- Dedicated pump house: 60 min. fire resistance if separate building, 120minutes if adjacent to or within a watermist protected building.

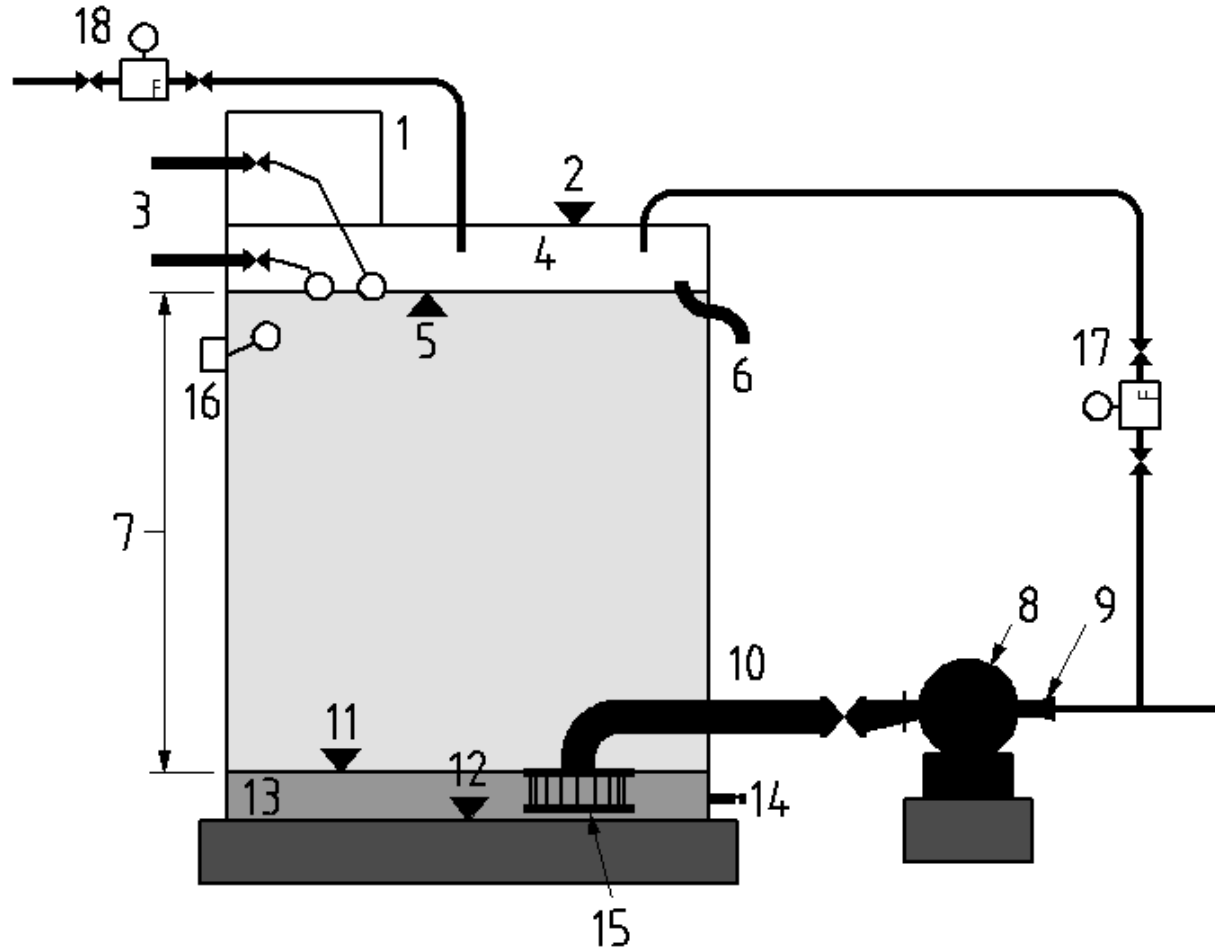
BS8489

principle requirements – water supplies cont'd

- Permanent pump flow/pressure test facility
- Cylinders – permanent means to check pressure and water content.
- Pump driver power 110% of rated power demand
- Pump continuous flow to prevent overheating
- Pump suction strainer
- Multiple pumps
 - - common suction
 - - individual pump isolation
 - -sequence starting
- Starting to ensure sustained system pressure



BS8489 principle requirements – water supplies cont'd



BS8489

principle requirements – Annexes

- **A- Elements of typical watermist systems – pump and tank, pump and towns main, cylinders.**
- **B – Enhanced availability provisions for volume protection systems**
- **C – Assumed maximum areas of operation – informative text and diagrams.**
- **D – Testing of nozzles**

Fire tests Commercial & Industrial

- Part 4 - ***FIRE TESTS FOR WATERMIST SYSTEMS***
- For protection of local applications.
- Part 5 - ***FIRE TESTS FOR WATERMIST SYSTEMS***
- For protection of combustion turbines and machinery spaces ≤ 80 m³
- Part 6 - ***FIRE TESTS FOR WATERMIST SYSTEMS***
- For protection of industrial oil cookers
- Part 7 - ***FIRE TESTS FOR WATERMIST SYSTEMS***
- For protection of low hazard occupancies.

Thankyou !!