



BSI Standards Publication

DRAFT FOR DEVELOPMENT

Fixed fire protection systems – Industrial and commercial watermist systems –

Part 6: Tests and requirements for
watermist systems for the protection of
industrial oil cookers

This publication is not to be regarded as a British Standard. See Foreword
for further information.

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Foreword

Publishing information

This part of DD 8489 is published by BSI and came into effect on 28 February 2011. It was prepared by Subcommittees FSH/18/2, *Sprinkler systems* and FSH/18/6, *Gaseous extinguishing media and systems*, under the authority of Technical Committee FSH/18, *Fixed fire fighting systems*. A list of organizations represented on these committees can be obtained on request to their secretary.

Relationship with other publications

DD 8489 is published in a series of parts:

- Part 1: *Code of practice for design and installation*;
- Part 4: *Tests and requirements for watermist systems for local applications involving flammable liquid fires*;
- Part 5: *Tests and requirements for watermist systems for the protection of combustion turbines and machinery spaces with volumes up to and including 80 m³*;
- Part 6: *Tests and requirements for watermist systems for the protection of industrial oil cookers*;
- Part 7: *Tests and requirements for watermist systems for the protection of low hazard occupancies*.

Information about this document

Third-party testing/certification. Users of this Draft for Development are advised to consider the desirability of third-party testing/certification of conformity with this Draft for Development.

This publication is not to be regarded as a British Standard.

It is being issued in the Draft for Development series of publications and is of a provisional nature because watermist is a new technology, and publication as a Draft for Development will enable the committee to gauge reactions and gather feedback before a full British Standard is produced. It should be applied on this provisional basis, so that information and experience of its practical application can be obtained.

A review of this Draft for Development will be carried out not later than 2 years after its publication.

Notification of the start of the review period, with a request for the submission of comments from users of this Draft for Development, will be made in an announcement in the appropriate issue of *Update Standards*.

According to the replies received, the responsible BSI Committee will judge whether the Draft for Development can be converted into a British Standard or what other action should be taken.

Any observations should be sent to the Secretary of BSI Technical Committee FSH/18 at British Standards House, 389 Chiswick High Road, London W4 4AL, if it is felt that they require attention before the official call for comments.

Use of this document

As a Draft for Development, this document is of a provisional nature. It should not be quoted as if it were a British Standard and particular care should be taken to ensure that claims of compliance are not misleading.

This Draft for Development is intended for use by manufacturers, designers and installers of watermist systems, and for authorities having jurisdiction.

It has been assumed in the preparation of this Draft for Development that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its methods are expressed as a set of instructions, a description, or in sentences in which the principal auxiliary verb is "shall". Its requirements are expressed in sentences in which the principal auxiliary verb is "shall".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a Draft for Development cannot confer immunity from legal obligations.

Introduction

Industrial oil cookers are typically non-insulated conveyORIZED fryers, or occasional batch kettles, used in food processing plants for chicken, fish, potato products (e.g. fries/chips), doughnuts and many other food products. These cookers are extremely different in size, configuration and construction from standard kitchen or restaurant oil cookers or fryers, and require a different type of extinguishment system.

Industrial oil cookers normally have large cooking surfaces; from 4.6 m² to several hundred square feet. They contain from a few hundred gallons up to approximately 18900 l of cooking oil. Industrial oil cookers (except for some batch kettles) typically have moveable covers, or hoods, that can be hydraulically operated. The hood is generally in a closed position in a normal operation period; however, the hood might be open from time to time as part of a routine maintenance. There are also exhaust stacks connected on top of the hood.

The most severe fire incident involving industrial oil cookers is a fire caused by overheating the cooking oil until it reaches its auto-ignition temperature (AIT). Even though installing an interlocking system to prevent the oil from reaching its AIT is a normal practice in the industry, an AIT fire can happen as a result of a system malfunction or simple human error. Thus, all the performance tests proposed in this part of DD 8489 require extinguishment of an AIT fire. The AIT fire is particularly challenging because of its rapid spread of flame over the oil surface and its difficulty in extinguishment, as it requires flame extinction over the entire surface with simultaneous rapid cooling to prevent re-ignition. Exhaust air fans need to be interlocked to shut down automatically upon fire detection or operation of the watermist system.

1 Scope

This part of DD 8489 describes tests and specifies requirements for industrial and commercial watermist systems for the protection of industrial oil cookers.

This part of DD 8489 does not cover external conveyors, fines boxes, oil transfer equipment or supplementary exhaust duct protection.

The tests and requirements given in this part of DD 8489 apply only to the specific fire scenarios described, i.e. with no obstructions between the watermist nozzles and the oil surface when the hood is in either the raised or lowered position. Configurations with obstructions are not covered in this part of DD 8489.

This part of DD 8489 is applicable to the protection of the industrial oil cookers only, and does not include the protection of other equipment such as exhaust ducts, heaters, heat exchangers and food processing areas.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

DD 8489-1, *Fixed fire protection systems – Industrial and commercial watermist systems – Part 1: Code of practice for design and installation*



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