Water mist fire protection systems for the protection of travelling ovens within the food industry.

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Bio[1]: Gary Howe is a Senior Fire Protection Engineer with Zurich Risk Engineering and a Fellow of the Institution of Fire Engineers. He undertakes surveys, testing and inspections at a broad range of industrial, manufacturing, educational and commercial premises throughout the UK and produces technical reports for insurance underwriters. Gary's role involves the assessment, evaluation, inspection, survey and testing of fixed fire protection systems including sprinkler systems, deluge systems, water mist systems, kitchen extinguishing and gaseous extinguishing systems and also the design, evaluation and assignment of fire detection systems for commercial, industrial and residential premises. Gary is a NFPA750 committee member and panel member of the British Standards Institution BS 8489-1 water mist development group, BSi FSH 14/-/7 BS 9999 and also sits on the FIA/BAFSA water mist working group and a UK representative for the water mist BSi FSH 18/2 WG 10 –prEN14972 working group.

Abstract

[Background]

Due to an increasing risk of business interruption due to a single fire event the demand and need for active fixed fire protection to mitigate the risk of business interruption was considered for the protection of travelling ovens in the food industry. With a potential impact of of 6-12 months of lost production through loss of the food production machinery and associated plant alongside the loss of key customers the risk of fire is a real concern to the food industry and any down time associated with the inability to produce and supply customers is simply unacceptable. The food industry is a dynamic and fast moving business and the risk of business interruption is a real concern to the industry and measures to mitigate the risk of this are required.

[Objective]

The aim of this project was to investigate whether water mist fire protection systems could provide a suitable level of fixed fire protection for the risk. The proposed water mist was cross mapped,

assessed and sense checked against the Zurich Recognised Technology methodology to ascertain compliance to property protection requirements.

[Main conclusions and recommendations]

It is concluded that the protection of travelling ovens using low pressure water mist is a viable and acceptable solution. There is an acceptable, robust and independent fire test protocol that mirrors the geometry, fire load and ceiling height of a travelling oven. There is use of listed, certified and 3rd party accredited components and equipment underpinned by a globally acceptable code and where installed in accordance with the design, installation and operation manual which includes a full system discharge and functional test of the water mist system, property insurers can have confidence in this specific water mist solution for the food industry.

The water mist system needs to be integrated with a suitable automatic fire detection system and be provided with suitable interlocks upon system activation and these aspects have to be carefully considered at design stage and tested at time of commissioning. For property insurance, water supply duration may require longer system water times compared to standard water supply durations as fire and rescue intervention is not guaranteed and the potential risk for fire re-ignition are to be carefully considered.

KEYWORD: water mist systems, Zurich Recognised Technology, travelling ovens, food industry