

Water mist fire protection systems for machinery local protection

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There is an increasing interest for fixed fire protection systems for different industrial applications involving flammable liquids. The production machines and objects are often high and long term investment for the operators and other stakeholders and the possibility of a fire occurring is recognised. In some cases a total flooding system i.e. protecting the entire space where the machines are located is not feasible e.g. due to large hall size. However, protecting the machines by applying the fixed fire protection system locally around the objects with the highest fire risk may provide a feasible solution to decrease the business downtime in the event of a fire.

For water mist systems the FM5560 has a comprehensive test procedure available that is describing the fire tests for water mist systems for the protection of local application. The FM test procedure states that the water mist manufacturer defines the types of local application in which the approval is being requested. This can be problematic as the machines and objects vary in shapes and sizes from large steam turbines all the way to small hydraulic power packs. The common nominator, however, are the oil and fuel lines, connections and flanges from which a spray fire, a pool fire or both can develop.

The complexity of the objects requiring a fixed fire protection system induces a great challenge for both the fire test procedure which should be comprehensive enough, and the water mist system that should be feasible for the application without forgetting the practical limitations for the actual installation e.g. adequate maintenance areas around the machines and objects etc.

Marioff has completed all the fire tests in accordance to the FM5560 local application test protocol and some key results will be discussed in more detail especially regarding how to adapt the test results for real applications. The audience will receive a comprehensive overview of what it takes to develop a performance based solution for approval testing, establishing system design parameters to final installation.

KEYWORDS: Water mist systems, fire protection, object protection, local protection