

Loss Prevention Standards – Asset Classes

Sprinkler Systems - Flexible Connections

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Introduction

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Flexible sprinkler connections, also known as flexible drops, are flexible pipes that connect directly from sprinkler distribution pipe work to a single sprinkler head in a suspended ceiling. There are strict installation and inspection requirements that must be met to ensure that the product performance is not compromised both during and post installation.

Guidance and Considerations for Use

For both new installations and all subsequent alterations, Aviva's strongest recommendation is that all sprinkler head 2nd fix work is completed using the 'hard-pipe' method. Where flexible sprinkler connections are used, only braided stainless steel flexible hoses should be specified, as opposed to the upbraided corrugated hose type. Additional issues to consider include:

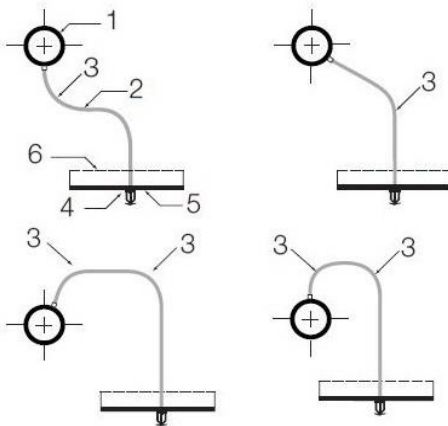
- All works need to be undertaken by a specialist sprinkler company, certified to an appropriate level within an independent third party accreditation scheme, for example 'LPS 1048: Requirements for the Approval of Sprinkler System Contractors in the UK and Ireland' or equivalent
- Flexible connections are only permitted where access for inspection and maintenance is provided, and unless the requirements of the LPC Sprinkler Rules can be complied with in full, the use of flexible drops in solid suspended ceilings, e.g. metal frame and plasterboard, must be avoided unless an adequate number of permanent and suitably sized access panels are provided for each individual sprinkler head
- In reality, the use of flexible connections is generally limited to lay-in or drop-out tile suspended ceilings, as by virtue of the suspended ceiling design, the access requirement noted above is maintained
- All subsequent works within suspended ceiling voids, i.e. not just works relating to the sprinkler protection, need to be closely supervised/managed, and be subject to formal, recorded inspections of the work area and the flexible connections both during and on completion of works, to ensure that there has been no interference, adjustment, damage, etc. to any flexible connections
- At the end of their serviceable life (as detailed by the manufacturer's instructions), flexible sprinkler connections should be replaced with new by a specialist sprinkler company, certified to an appropriate level within an independent third party accreditation scheme

Installation Requirements

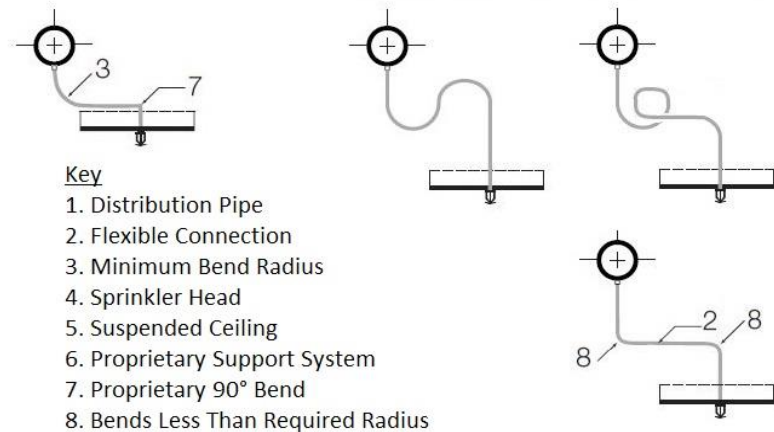
- The installation of flexible connections needs to fully comply with the manufacturer's instructions, and cannot exceed any limitations of use stated in the certification listing
- Flexible connections are only to be used on wet pipe installations
- Flexible connection sprinkler terminations need to be supported by the manufacturer's corresponding, certificated support bracket assembly appropriate to the suspended ceiling construction
- A flexible connection of an appropriate length needs to be specified; bending to reduce the effective length is not permitted
- Only one flexible connection shall be used to connect a sprinkler, with a total length including connectors not exceeding 1220mm
- Flexible connections can only be used to connect a single sprinkler head to a distribution pipe with a minimum diameter of 32mm, and inlets to flexible connections also need to be 32mm diameter
- Where the distribution pipe outlet is on the top of the distribution pipe, the flexible pipe needs to follow a 180° arc before falling vertically towards the sprinkler; for all other outlet positions, the flexible connection may run either horizontally or be inclined towards the sprinkler head

- The flexible connector bend radii must not be smaller than the specified minimum bend radius, and the total aggregate bend angle must not exceed the value stated in the product certification listing; all bends greater than 45° need to be fitted with minimum radius indicator(s), including retrospectively where not already installed
- During installation and on completion of works, the flexible drops needs to be inspected to ensure compliance with the above, and the following acceptable installation examples:

Acceptable Installation Examples



Unacceptable Installation Examples



Note: Any damaged, kinked, or incorrectly installed flexible sprinkler connections, or any that have been adjusted in any way subsequent to the original installation must be stripped-out, scrapped, and replaced with new.

Additional Information

Further risk management information can be obtained from [Aviva Risk Management Solutions](#)

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