

### Introduction

For many years flexible tubing has been used in sprinkler systems to connect racking pipework to the distribution mains to cater for any movement that may occur within the racking. In more recent times prefabricated flexible connection pipework units have been introduced to supply sprinkler heads in false ceilings. It can be an easier, quicker and cleaner method of installing the sprinkler head to the centre of the ceiling tile and making a flush connection to the tile. Flexible connectors also have value in situations where sprinkler systems are being retrofitted in existing buildings - especially in heritage buildings where their presence can make it simpler and easier to minimise the visual impact of sprinkler heads by ensuring that heads can be precisely positioned in decorated ceilings.

However, there are some who express concern about the use of these connections with doubts arising from inappropriate use and poor installation work. This BAFSA Information File is intended to outline the essential installation practices which must be followed in order to ensure that any installation using flexible connections operates effectively and is acceptable to the Authority Having Jurisdiction (AHJ).



### Approvals

Flexible sprinkler connection assemblies for use in wet sprinkler systems must be LPCB approved and listed to LPS 1261 and installed in accordance with the



manufacturer's instructions. They are an extension of the distribution pipework and must be subject to the same best design and installation working practices.

### Distribution Pipework Sizing and Outlet Size

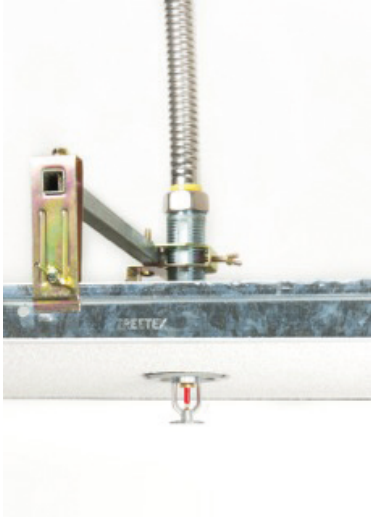
In pre-calculated systems installed to tables, all rigid pipework up to the flexible must be sized as a distribution pipe, minimum 32mm diameter. All outlet connections must be 32mm (R1.1/4). (NB. This allows for rigid pipework to be extended or traditional arm over to be fitted when necessary).

### Outlet Orientation

In keeping with best design and installation working practices, the connection to the rigid pipework should be installed in the 180 degree arc above the horizontal centre line of the range pipe. Where circumstances dictate otherwise TB227 allows for outlets below the centre line, however, the route of the flexible must have a constant vertical fall to the sprinkler outlet.

### Flexible Length Sizing

TB227 requires the installation of the most appropriate length of flexible to suit the distance between the range pipe outlet and ceiling level limited to a maximum length of 1220mm (including connectors) unless otherwise agreed by the AHJ. The maximum lengths of flexible sprinkler connections for pre-calculated and fully hydraulically calculated systems are given in the LPCB Red Book under the manufacturers' listing.



### No Combined Lengths

Flexible connections must not be joined together to make longer lengths. The appropriate length must be installed or the range pipe extended.

### Minimum Bend Radius

The minimum bend radius must be observed. TB227 of the LPC Rules calls for an effective Minimum Radius Indicator to be fitted to all minimum radius bends.

### Bend Angle Restrictions

Based on the pressure loss tests to determine acceptable equivalent pipe lengths, each manufacturer's LPCB Red Book listing shows the total bend angle limits for both straight and angled sprinkler head connection outlets. The manufacturer's installation instructions also show these maxima which must not be exceeded. In addition, the manufacturer's minimum bend radii must be adhered to.

### Permanent Deformation

Crushed pipes or kinks in the piping are not allowed. If the flexible cross section becomes compromised (e.g. open area reduced by a kink), it must be discarded and replaced.

### Support Bar and Brackets

The manufacturer's ceiling support brackets and bar must be used. Please refer to manufacturer's installation instructions for intermediate support requirements.



### Inspection Access

Conventional lift out tile ceilings by design afford good access. Plasterboard ceilings should include a suitably positioned access point to allow inspection of a complete zone. Alternatively a sealed plasterboard ceiling can be installed following an inspection and acceptance by the Authority Having Jurisdiction.

### Training

Design and installation personnel must be trained and certificated by the manufacturer in the correct procedures for the model of flexible sprinkler connections being installed.

### Presented by:

