Specification for the Coopers FireMaster automatic fire barrier

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Product Reference:

Coopers FireMaster Automatic Fire Barrier

Description:

FireMaster is an electrically operated automatic fire barrier, used to form a virtually continuous barrier against both fire and fire effluent (smoke).

Approved Standards:

The following standards apply to this product:

BS EN 1634-1: 2000
Fire resistance tests for door and shutter assemblies. Fire doors and shutters
BS EN 1364-1: 1999
Fire resistance tests for non-loadbearing elements. Walls
BS EN 1363-1: 1999
Fire resistance tests. General requirements
BS 476: Part 6: 1989
Fire tests on building materials and structures. Method of test for fire propagation for products
BS 476: Part 7: 1997
Fire tests on building materials and structures. Method of test to determine the classification of the surface spread of flame of products
BS 476: Part 20: 1987
Fire tests on building materials and structures. Method for determination of the fire resistance of elements of construction (general principles)
BS 476: Part 22.8: 1987
Fire tests on building materials and structures. Methods for determination of the fire resistance of non-loadbearing elements of construction. Determination of the Fire Resistance of Uninsulated Doorsets and Shutter Assemblies.

BS 476: Part 31.1: 1983

Fire tests on building materials and structures. Methods for measuring smoke penetration through doorsets and shutter assemblies. Method of measurement under ambient temperature conditions

BS 5234: Part 2: 1992

Partitions (including matching linings). Specification for performance requirements for strength and robustness including methods of test

BS 7346: Part 3: 1990

Components for smoke and heat control systems. Specification for smoke curtains

Product Performance:

Complete product tested to BS EN 1634-1: 1999 achieving a rating of 180 mins integrity (1000°C, above 90 minutes), BS 476: Part 22: 1987 achieving a rating of 240 mins integrity (1000 °C, above 90 minutes), BS 476: Part 31.1: 1983 at 25Pa with an Ambient leakage rate of 3.15m³/m/h, and provide evidence of mean temperature testing at 200 °C.

Designed to operate for 2,000 cycles at normal ambient temperatures in the range from 0ºC to 60ºC, and to withstand fire at temperatures up to 1000 ºC for over 240 minutes once only.

The fabric has a Class 1 surface spread of flame when tested to BS 476: Part 7: 1997 and a fire propagation index I=2.7 when tested to BS 476: Part 6: 1989. It is therefore rated Class 0 to the UK Building Regulations.

General Description:

The Coopers FireMaster automatic fire barriers (curtains) comprises of a fire resistant fabric on a steel roller, powered by an internal 24volt/DC electric motor including gearbox, electromechanical distance travel/limit switches, linked to an internal 24volt/DC electromagnetic brake which allows the barrier to remain in the retracted position when all power is removed from the motor unit. The system must also have full fail-safe by 'Gravity' with controlled braking system and drive mechanisms. System must show the ability to operate with the barrier retained in side channels to resist fire pressure and impact.

The motor/roller/fabric/bottom bar assembly is located in a 1.2mm galvanised rectangular casing, which provides protection for the barrier (curtain) and acts as a fixing element to the building structure.

Widths exceeding 5m shall be continuously overlapped and conjoined. Minimum width is 800mm, maximum widths are 54m. Drops are assessed to 8m.

Fabric

The curtain material is a satin weave fibreglass fabric with a silver polyurethane coating on both sides and integral stainless weave. It is 0.54mm thick, and weighs approximately 690g/m² in its finished form. The fabric is manufactured in widths of approximately 1.5m, and is tested in the vertical orientation including the sewing yarns.

Bottom Bar Assembly:

The bottom bar assembly is attached to the lower edge of the fabric, and acts to keep the fabric hanging vertical and taut when the curtain is in the lowered position, minimising deflection due to air currents. Bottom bar assemblies are tested up to 10k/m.

Control System:

The fire curtains will be capable of operation as an integrated part of the Smoke Control and Fire Management System, with emergency power units complete with battery back up and alarm interface panels.

The system shall be fully protected and fail-safe by 'Gravity', meeting the requirements of ASB3 *(moving to the fire operational position in a controlled manner when all consumable primary and auxiliary power sources are removed, in the event the wiring or system corruption, or any combination thereof)* and thereby avoiding the need for fire rated cabling.

System shall drive down and drive up with mains power available, and in the event of mains power failure, shall be capable of operating for a specified number of operating cycles under its own dedicated emergency power supply, or in the event of mains power failure, the system shall remain retracted using its own dedicated battery back up power supply for a predetermined period (usually 30 minutes).

If signalled to descend during this period the barrier will move to its fire operational position. At the end of the predetermined time delay the barrier must descend under fail-safe by 'Gravity' with a controlled and adjustable rate of descent. This safety feature is essential to avoid dangerous guillotine/free-fall descent.

Synchronized velocities within the range of 0.06m/s to 0.30m/s. Fire barriers (curtains) which are located in critical areas of the project, eg. escape routes, entrances/exits to escalators, stairways, etc., shall have site specific adjustable and synchronized velocities within the range of 0.06 m/s to 0.15m/s. All speeds controls must show appropriate testing by a notified body and must be site adjustable without altering bottom bar mass.

TSMU (optional):

Complete fire barrier (curtain) system shall have a fully addressable, local and remote monitoring facility, and must show that barriers (curtains) have physically descended and not just been signalled to descend.

Optional Extras:

Split drops delay:

Partial descent to predetermined level to permit preliminary escape and initial smoke containment. After delay barrier (curtain) descends to full fire operational position.

Voice warning:

Audio and/or spoken multi message facility.

Beam protection and obstruction warning:

A beam detector, with delay timer which will sound in the event of any obstruction being placed in the barrier (curtain) deployment line.

Visual alert system:

Standard localized flashing light.

Emergency retract:

Push button retract facility for escape and emergency service access.