

SPECIFICATION COOPERS SMOKESTOP® CONCERTINA™ ACTIVE SMOKE BARRIERS

In accordance with:

BS EN 12101-1+A1
BS EN 1363-1
BS EN 1634-3
BS EN ISO 1716
BS EN 13823
BS EN 13501-1
BS 476-6
BS 476-7

Period of Fire Resistance:

90 minutes (1.5 hour) integrity

Assessed Classification:

DH90, A1

Certification:

The Coopers SmokeStop® Concertina™ active smoke barrier shall have certification and listing with an independent accredited certification body operating a Level 5 certification scheme as defined in ISO Guide 65, and in accordance with BS EN 45011. The system shall be CE Marked in accordance with EU Construction Products Directive (89/106/EEC), as amended by the CE Marking Directive (93/68/EEC), with attestation being conducted by an accredited notified certification body that conducts regular FPC surveillance visits to the manufacturer. The manufacturer shall operate and be certified to BS EN ISO 9001 for quality management systems, and BS EN ISO 14001 for environmental management systems. The manufacturer shall operate and shall have certification and listing with an independent accredited certification body operating an accredited UKAS installer, commissioning and servicing scheme.

Product Name and Model:

Coopers SmokeStop® Concertina™ DH90 active smoke barrier

General description:

An electrically operated Coopers SmokeStop® Concertina™ active smoke barrier is used to form a virtually continuous barrier against fire effluent (smoke).

NOTE For ease of reference the Coopers SmokeStop® active smoke barrier has been referred to the "barrier assembly - ies" throughout the remainder of this specification.

Barrier assemblies shall be tested for fire resistance to BS EN 1363-1, tested for permeability using test procedures defined in BS EN 1634-3 as required by BS EN 12101-1+A1, and be classified to BS EN 13501-4.

Description:

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Active smoke curtain barrier assemblies shall comprise of a folded/ pleated fire resistant fabric mounted inside a headbox and fixed to a bottom tray which is fixed either side to steel pulley tapes which are wound on to a 15 mm diameter drive shaft. The drive shaft is powered by an external 24Vdc electric motor(s) via a chain and sprocket. They are enclosed within a 1.6 mm (0.062 in) galvanized mild steel box. A bottom tray to suit the deflection performance requirements of the project and the desired ceiling configuration is fitted to the bottom edge of the fabric curtain.

Motors shall meet all applicable safety standards. Motors shall contain the necessary drive mechanisms, a mechanical epicyclic gearbox retarder, automatic overload protection and both automatic and manual distance travel positioning, linked to an internal 24Vdc electromagnetic brake with regenerative braking system. When motors are retracted their internal drive motor shall be isolated from all power and the barrier shall be held in position by an internal electromagnetic brake. This ensures the barriers not drift upward or downward.

The barrier assemblies shall operate with fail-safe by gravity, using patented true TOTAL (TGFS), in accordance with BS EN 12101-1+A1, and be able to move to their fire operational position even in the event of open or closed circuit wiring, or total system corruption, with controlled braking system and drive mechanisms. All working parts shall be totally enclosed and protected within the steel roller and shall be tested as part of the complete assembly for fire resistance.

The barrier assemblies must show the tested ability to use a range of heavy bottom bar weights in order to meet critical anti-deflection performance requirements, as required in design guides such as BS 7346-4, BR 368 etc. The bottom edge of the smoke barrier shall incorporate a heavy bottom bar with a minimum standard weight of 3 kg/m (2.015 lbs/ft) with the facility to increase this weight to 10 kg/m (6.719 lbs/ft) to ensure positive operation when subjected to pressure. The Engineer shall declare to the manufacturer such pressures, or wind loads in advance to ensure operational conformity.

Operation:

The barrier assemblies type ASB1 & ASB3 for “Life Safety” shall move to their fire operational position in a controlled manner when all consumable primary and auxiliary power sources are removed, in the event the wiring, open or short circuit, or system corruption, or any combination thereof.

The barrier assemblies shall fail-safe by gravity, using patented true TOTAL (TGFS), and ‘drive up’ with mains power available. In the event of mains power failure, they shall remain retracted using their own dedicated battery back-up power supply for a pre-determined period (nominally 30 minutes). If signalled to descend during this period they shall fail-safe by gravity in a controlled manner to their fire operational position. At the end of the pre-determined time delay they shall fail-safe by gravity in a controlled manner. This safety feature is essential to avoid dangerous guillotine/free-fall deployment.

The barrier assemblies must commence movement upon initiation or any initiation, power or system failure and move to the fire operational position, in all operating modes, at site specific adjustable and synchronised velocities within the range of 0,06 m/s to 0,30 m/s (2.362 in/s to 11.811 in/s) using the unique VarioSpeed™ function. Barrier assemblies which

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are located in critical areas of the project, e.g. escape routes, entrances/exits to escalators, stairways, etc., shall have site specific adjustable and synchronised velocities within the range of 0,06 m/s to 0,15 m/s (2.362 in/s to 5.905 in/s) using the unique VarioSpeed™ function. Operating speeds shall be site adjustable without altering bottom bar mass. Speeds may be dictated by those authorities having jurisdiction for 'safety in use' according to the location, nature or function of each unit.

The barrier assemblies shall have the facility to deploy to a partial drop position prior to moving to their fire operational position under both mains, and emergency power. Barrier assemblies in their retracted or 'stalled' position shall have all power removed from the motor(s) to prolong motor life. Barrier assemblies that require multiple overlapping barriers shall have a continuous bottom bar system conjoining the run with mutual operation, i.e. one down—all down (handshaking).

The barrier assemblies shall have a "soft ascent facility" to ensure no damage to the surrounding ceiling interface when retracting. The barrier assemblies shall have a built-in protection in the event that they are prevented from ascending to their retracted position, or descending to their fire operational position. This ensures they are always in their required position and avoids damage to the barrier assemblies' mechanism and surrounding ceiling finishes. Any combination of the alarm/control signal provided by the Electrical Subcontractor, and/or the specified fail-safe functions shall activate the system.

The barrier assemblies must prove the ability to operate with edge gaps between 20, 40 and 60 mm (0.787, 1.574, 2.362 in), height dependent, in all other situations unless the fabric edge interfaces with a retention system, i.e. side guides to resist pressure (as standard 25 Pa (0.1 in water)).

If side guides are provided they shall have formed part of the complete system test in accordance with BS EN 12101-1+A1.

Fabric:

The fabric material shall be tested as part of the complete assembly complete with overlapping barrier panels in the orientation and standard use of the application and installed in accordance with the fire resistance test in BS EN 1363-1, as required by BS EN 12101-1+A1.

The fabric material (part of the original test specimen) shall be tested for permeability to BS EN 1634-3 with a rate $<25\text{m}^3/\text{h}/\text{m}^2$ ($882.866\text{ft}^3/\text{h}/\text{ft}^2$) at ambient temperature at 25 Pa (0.1 in water).

The fabric material shall be tested independently to reaction to fire tests in accordance with BS EN ISO 1716 to achieve an "A1" classification in accordance with BS EN 13501-1+A1.

Optional extras:

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- Voice warning:
Audio or spoken multi message facility when mains or emergency power is available.
- 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 drop line when mains or emergency power is available.
- Visual alert system:
Light warning system when mains or emergency power is available.
- Split drop delay:
To partially deploy to pre-determined level to permit escape, and initial smoke containment. After delay fully deploys to its fire operational position when mains, or emergency power is available.
- Emergency retract:
Touch button retract facility for multi-escape and emergency service ingress/egress when mains or emergency power is available.

Manufacturers:

Subject to compliance with all requirements set out in this specification, manufacturers offering products may be incorporated into the work are limited to the following:

- Coopers Fire Limited, Edward House, Penner Road, Havant Hampshire, PO9 1QZ, United Kingdom. Tel +44 (0)23 9245 4405, Fax: +44 (0)23 9249 2732, Email: sales@coopersfire.com, Web: <http://www.coopersfire.com>

Warranty:

The manufacturer shall submit a written warranty for a period of one (1) year. If any part of the works of this section, including design, fabrication or installation are sublet to any party, such party shall provide a collateral warranty equivalent to the warranty.

Product certification, performance and/ or testing:

- Complete barrier assemblies are CE Marked in accordance with EU Construction Products Directive (89/106/EEC)
- Complete barrier assemblies are certified with an independent accredited certification body operating a Level 5 scheme as defined in ISO Guide 65, and in accordance with BS EN 45011
- Complete barrier assemblies are certified with an independent accredited certification body operating an accredited UKAS scheme for installation, commissioning and servicing
- Complete barrier assemblies have full testing to BS EN 12101-1+A1
- The fabric used within the barrier assemblies shall be tested to BS EN 1634-3
- The fabric used within the barrier assemblies shall be tested to BS EN ISO 1716
- The fabric used within the barrier assemblies shall be tested to BS EN 13823
- The fabric used within the barrier assemblies shall be tested to BS 476-6+A1
- The fabric used within the barrier assemblies shall be tested to BS 476-7

Approving standards:

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The following standards apply to this product:

- BS EN 12101-1:2005+A1:2006, Smoke and heat control systems – Part 1: Specification for smoke barriers
- BS EN 1363-1:2012, Fire resistance tests – Part 1: General requirements
- BS EN 1634-3, Fire resistance tests for door and shutter assemblies – Part 3: Smoke control doors and shutters
- BS EN ISO 1716:2010, Reaction to fire tests for products. Determination of the gross heat of combustion. (Calorific value)
- BS EN 13823:2010, Reaction to fire tests for building products. Building products excluding floorings exposed to the thermal attack by a single burning item
- BS EN 13501-1:2007+A1:2009, Fire classification of construction products and building elements. Classification using test data from reaction to fire tests
- BS 476-6:1989+A1:2009, Fire tests on building materials and structures. Method of test for fire propagation for products
- BS 476-7:1997, Fire tests on building materials and structures. Method of test to determine the classification of the surface spread of flame of products
- BS 6323-5:1982, Specification for seamless and welded steel tubes for automobile, mechanical and general engineering purposes. Specific requirements for electric resistance welded (including induction welded) steel tubes
- BS EN ISO 9001:2008, Quality management system
- BS EN ISO 14001:2004, Environmental management system