

PRODUCT SPECIFICATION

FireMaster® Plus Concertina™

1 GENERAL

1.1 Scope

Coopers FireMaster® Plus Concertina™ active fire curtain barrier assemblies (“Fire Curtains”) are to be designed, fabricated, delivered, installed and commissioned with all required components as outlined in this specification.

1.2 Design Criteria

The designer must consider the following:

- Structural movement of the building
- Building tolerance
- Fire resistance requirements
- Activation requirements for the fire barriers
- Optional items that are required with the product
- Maintaining the area underneath the curtain as clear from obstructions

1.3 Related Works

Co-ordination is required with the following trades:

- Structure – Steel or formwork
Headbox must be installed level to 2mm tolerance across the entire width of the headbox
- Ceilings & Partitions
- Floor
- Handrails/balustrades
- Electrical – 240V 20A power supply to each curtain controller
- Dry Fire – Normally closed volt free alarm signal to each curtain controller

1.4 Submittals

Shop drawings detailing the location, size, requirements ‘by others’ and design of the Coopers FireMaster® Plus Concertina™ Fire Curtains shall be submitted to the Principal Contractor and the drawings approved prior to the commencement of the manufacture process.

If required in the architectural specification, samples of the fabric and components will be delivered to the Principal Contractor on request.

1.5 Quality Assurance

Materials and work shall conform to the latest edition of reference specifications and the manufacturer shall implement and operate an approved Quality Assurance system for the product, complying with the requirements of ISO 9001: 2008.

1.6 Relevant Standards

Coopers FireMaster® Plus Concertina™ automatic fire barriers have been tested by an approved industrial research and testing organisations registered by the National Association of Testing Laboratories (NATA) to the following Standards:

- AS/NZS 1530.3: 1999 : Methods for fire tests on building materials, components and structures - Simultaneous determination of ignitability, flame propagation, heat release and smoke release
- AS 1530.4: 2005 : Methods for fire tests on building materials, components and structures - Fire-resistance test of elements of construction
- BS EN 949:1999 : Windows and curtain walling, doors, blinds and shutters. Determination of the resistance to soft and heavy body impact for doors
- ISO 9001: 2008: Quality management systems

1.7 Warranty

Coopers Fire Pty Limited warrants that its FireMaster® Fire Curtains are free from manufacturing defects for a period of not less than five (5) years when installed, maintained and used in accordance with Coopers specifications and operational manuals.

2 Product

2.1 Approved Manufacturer

Coopers Fire Pty Limited
Unit 12 7-11 Paraweena Road, Taren Point NSW 2229, Australia
Tel: +61 2 9526 3100, Fax: +61 2 9526 3111
Email: info@coopersfire.com.au, Web: www.coopersfire.com.au

Coopers Fire Limited
Edward House, Penner Road, Havant, HANTS PO9 1QZ, England
Tel: +44 23 9245 4405, Fax: +44 23 9249 2732
Email: info@coopersfire.com, Web: www.coopersfire.com

2.2 Location

Coopers FireMaster® Plus Concertina™ fire curtains are to be installed in the locations shown on the Architectural drawings.

2.3 Proprietary Item

Coopers FireMaster® Plus Concertina™ Fire Curtains including

- Galvanised mild steel headbox, tubular Gravity Fail Safe DC geared motor with brake, fire resistant fabric, galvanised mild steel bottom tray, sprocket and chain, drive shaft, motor controller, power and fire zone controller incorporating battery backup
- The fabric, when installed, forms one continuous barrier around the complete opening. Corners or joins in the fabrics are studded together in a fabric pocket, providing complete separation from one side of the barrier to the other.
- Complete product testing and certification to AS 1530.4(2005) to an FRL of -/120/- clearly showing the maximum allowable size for the curtain and this maximum size shall not be less than the installed sizes required.
- The complete product must meet the radiation criterion of 10kW/m² at 365mm as tested in AS1530.4(2005) for a period of not less than 90 minutes when measured at the centre of the curtain.
- Complete product testing and certification to AS/NZ 1530.3(1999) with an index rating not greater than:
Ignitability – 16 Spread of Flame – 0 Heat Evolved – 3 Smoke Developed – 6

An electrically operated FireMaster® Plus Concertina™ active fire curtain barrier assembly used to form a virtually continuous barrier as a fire separating element.

Barrier assemblies shall meet the requirements of BSI PAS 121 (where appropriate) and be tested for impact to BS EN 949, and BS 5234 2 to “double” the severe duty, be tested for controlled speeds in all modes including fail-safe by gravity on total power failure (must not be reliant on secondary power supplies to provide the ‘braking effect’), be tested for self-closing and mechanical resistance to BS EN 12605, be tested for fire resistance to BS EN 1634 1 (BS EN 1363 1 & 2), and be classified to BS EN 13501 2.

The barrier assemblies shall be constructed from pleats. The material keeps the memory of the folds as manufactured. As the bottom tray deploys these pleats unfold. During retraction of the curtain the pleats will neatly fold back to their stored position.

2.4 System Components

2.4.1 Headbox

The fire curtain is concealed in a galvanised mild steel headbox of not less than 1.5mm thickness which provides protection for the barrier (curtain) and acts as a fixing element to the building structure. This can be powder coated to a standard RAL colour.

2.4.2 Motor

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 have true fail-safe by gravity, in accordance with BSI PAS 121, 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 enclosure and shall be tested as part of the complete assembly for fire resistance.

To enable easy maintenance the motor(s) shall be positioned and mounted outside the headbox. The motor(s) must be able to be mounted on either vertical face or the top face to suit site conditions.

Additionally, the motor(s) shall be tested for operation at temperatures of 300 °C as required by BSI PAS 121.

2.4.3 Fabric – Coopers EFP™ 2/1000/BI

The curtain material is a continuous filament glass fibre and stainless steel wire fabric with fire retardant intumescent graphite flake silicone coating. It is 2mm thick, and weighs approximately 1.64kg/m² in its finished form. The fabric is manufactured in widths of approximately 1.5m and is tested in the vertical and horizontal orientation including the sewing yarns.

The fabric is constructed in strips forming a pleated design. These are stitched together horizontally.

2.4.4 Corner Fabric – Coopers EFP™ 4/1000

The curtain material is a satin weave fibreglass fabric with a silver polyurethane coating on both sides and integral stainless wire. It weighs approximately 690g/m² in its finished form. The fabric is manufactured in strips and is tested in the vertical orientation including the sewing yarns.

The fabric is constructed in strips forming a pleated design. These are stitched together horizontally. The corners are stitched and folded to create any angle from 60° to 180° incorporating a fabric pocket to join the fabrics together forming one continuous barrier.

2.4.5 Bottom Tray

The bottom tray assembly is attached to the lower edge of the fabric, and acts to keep the fabric hanging vertical when the curtain is in the lowered position, minimising deflection due to air currents. The bottom tray must form one continuous section when installed. The bottom tray is galvanised mild steel and can be powder coated to a standard RAL colour. It is tested up to 10kg/m.

2.4.6 Controls

The active fire curtain barrier assemblies will be capable of operation as an integrated part of the Smoke Control and Fire Management System, with power supply units complete with battery backup 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.

The system shall descend by gravity and drive up with mains power available. In the event of mains power failure, the system shall remain retracted using its own dedicated battery backup 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.

The speed of descent will be synchronised between barriers within the range of 0.06m/s to 0.15m/s. All speed controls must show appropriate testing by a notified body and must be site adjustable without altering bottom tray mass.

See datasheet (VS6-BBU-CAM or VS6-BBU-CG)

2.5 Optional Components

2.5.1 Visual Alert

A red local flashing light will flash whilst the curtain is down or coming down.
See datasheet (VS6-LWC)

2.5.2 Voice Warning

This is an audio and/or spoken multi message facility. The unit can give one customised up to 16 second message relayed when the curtain system activates or two 8 second customised messages relayed at different system events e.g. one message when the curtain activates and a different message when emergency retract is used. The default message is "Warning, fire curtain descending"
See datasheet (VS6-VWR)

2.5.3 Split Drop Delay

Upon activation the automatic fire barrier must partially descend to a predetermined height to permit preliminary escape and initial smoke containment. After a time delay the barrier (curtain) descends to the full fire operational position.

2.5.4 Dual Drop

Upon activation (e.g. smoke detection) the automatic fire barrier must partially descend to a predetermined height to permit preliminary escape and initial smoke containment. On secondary activation (e.g. heat detection) the barrier (curtain) descends to the full fire operational position.

2.5.5 Obstruction Warning System

The Obstruction Warning System monitors the opening protected by a fire curtain to ensure the opening is kept clear. If the opening is obstructed for longer than the time allowed (normally 5 minutes) the system will be activated. This system incorporates a Visual Alert and/or Voice Warning with the default warning message "Warning, please remove obstruction"
See datasheet (VS6-OWS-C)

2.5.6 Building Management System Outputs

The status of the fire curtain system can be monitored by the building management system with the optional BMS outputs. The following will be monitored:

- Mains power status
- Alarm status
- Battery condition
- Curtain Up
- Curtain Down
- Curtain fault

2.6 Product Performance:

The complete FireMaster® Plus Concertina™ product inclusive of headbox, motor, fabric and bottom tray is to be tested or assessed to AS1530.4 (2005) achieving an FRL of -/120/- clearly showing the maximum allowable size for the curtain and this maximum size shall not be less than the installed sizes required.

The complete product must meet the radiation criterion of 10kW/m² at 365mm as tested in AS1530.4(2005) for a period of not less than 90 minutes.

The fabric must be tested to AS/NZ 1530.3(1999) with an index rating not greater than:
Ignitability – 16 Spread of Flame – 0 Heat Evolved – 3 Smoke Developed – 6

The complete system is to be designed to operate for a minimum 1,000 cycles at normal ambient temperatures in the range from 0°C to 60°C, and to withstand fire at temperatures up to 1000 °C for over 120 minutes once only.

2.7 Operation

The active fire curtain barrier assemblies will remain retracted within its headbox until it is automatically activated by the fire alarm signal. Upon activation the active fire curtain barrier assemblies will deploy by gravity to its fire operation position, completely closing the opening and creating a fire compartment.

Once the fire alarm signal is restored the FireMaster® Plus Concertina™ active fire curtain barrier assemblies are manually reset by pressing the reset button on its controller.



2.8 Labelling

The Coopers FireMaster® Plus Concertina™ active fire curtain barrier assemblies must be labelled with a metal tag riveted to the bottom tray clearing showing the curtain details, manufacturer, installation date and FRL.

3 EXECUTION

3.1 Installation

Coopers FireMaster® Plus Concertina™ active fire curtain barrier assemblies shall be installed by Approved Installers in strict adherence with the manufacturer's guidelines and the advice (if required) of their official representative.

Ensure that the structure being fixed to is suitably fire rated and to the manufacturer's specifications.

All Coopers FireMaster® Plus Concertina™ active fire curtain barrier assemblies shall be carefully located in the positions indicated on the approved Shop Drawings in perfect alignment, plumb, level, straight and true.

Adjust the active fire curtain barrier assemblies to provide uniform clearances and smooth non-binding operation.

Install all wiring to active fire curtain barrier assemblies in strict accordance with the manufacturers written instructions and AS/NZS 3000:2007 Wiring Rules.

3.2 Commissioning

The installer shall perform suitable tests to ensure that the Coopers FireMaster® Plus Concertina™ active fire curtain barrier assemblies operate in accordance with the Contract Documents and this specification.

Complete interface testing shall be performed between all associated trades to ensure that the Coopers FireMaster® Plus Concertina™ active fire curtain barrier assemblies work correctly in fire mode. At a minimum this will be between the fire alarm/s and active fire curtain barrier assemblies.

3.3 Maintenance

The Coopers FireMaster® Plus Concertina™ active fire curtain barrier assemblies shall be included in the required Fire Safety Measures for the building and must be maintained in accordance with the manufacturer's recommendations. At a minimum the active fire barriers shall be inspected and maintained in accordance with AS1851 (2012) Section 13 which requires 6 monthly intervals. Maintenance and inspections shall be performed by fully trained and competent technicians.