

BLE Smoke & Fire Curtains

SPECIFICATION - Model FC1 Fire Curtain (European Standards)

OVERVIEW

The BLE Model FC1 active fire curtain is manufactured from the X32K woven glass fibre coated on each side with a micronised aluminium polymer coating. The complete curtain assembly is rated at 1000°C for a period of up to 60 minutes for Integrity (E), and 60 minutes for Irradiation (W), depending on the size of the curtain, see Table 1.



The X32K fabric is wound onto a tubular steel roller assembly that incorporates a 24V permanent magnet motor. The roller assembly is fitted inside a galvanised steel headbox that can be fixed directly to the structure of the building. Side guides, 100mm deep x 50mm wide, incorporating a fabric retaining mechanism are used to limit the deflection of the curtain under the pressure created in a fire and to minimise smoke leakage. A standard bottom bar consisting of twin 20mm x 20mm x 3mm steel angles is used to ensure the curtain deploys under gravity in a controlled manner (Gravity Fail Safe).

Heavier bottom bars may be required for some curtains to ensure correct deployment or to reduce deflection of the curtain due to variations in air pressure. The curtain headbox, side guides and bottom bar can be powder coated in any RAL colour as an optional extra, or can be supplied in stainless steel.

PRODUCT PERFORMANCE

The complete FC1 Fire Curtain system has been tested to BSEN1634 - Part 1: Fire resistance test for door and shutter assemblies and openable windows and has a third party Certificate of Approval from Warrington Certification Ltd. Certifire Certificate Number CF5432. The X32K fabric has a class 1 surface spread of flame rating when tested to BS 476: Part 7 and a fire propagation index I = 4.8 when tested to BS 476: Part 6. These tests demonstrate compliance with the requirements for Class 0, as defined in Approved Document B of the Building Regulations in England.

Table 1 - Designations, size limitations & Fire Resistance Periods for the FC1 Fire Curtain

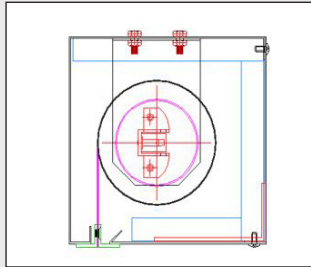
| Designation | Single Roller | Multi Roller | Max Width (M) | Max Drop (M) | Fire Resistance (mins) | | Test Standard | Certificate / Reports |
|-------------|---------------|--------------|---------------|--------------|------------------------|----------------|---------------|-----------------------|
| | | | | | Integrity (E) | Irradiance (W) | | |
| FC1 | Yes | No | 3.0 | 3.0 | 60 | - | BSEN 1634 | Certifire CF5432 |
| | Yes | No | 2.8 | 2.5 | 60 | 30 | | |
| | Yes | No | 1.4 | 2.5 | 60 | 60 | | |

SMOKE & FIRE

HEADBOX SIZING

The curtain headbox is typically 150mm wide x 150mm deep. Where the headbox is greater than 2.5m wide, up to the maximum width of 3.0m the Headbox will be 180mm wide x 180mm deep to accommodate extra roller support brackets. Table 2 gives details headbox size required for the FC1 fire curtain.

Table 2 – FC1 Fire Curtain, Head box sizing guide



| Curtain Drop | Roller Width | |
|--------------|--------------|-------------|
| | Up to 2.5 | 2.5 to 3m |
| Up-to 1.5m | 150 x 125mm | 150 x 150mm |
| 1.5 to 3.0m | 150 x 150mm | 180 x 180mm |

CONTROL SYSTEMS

A Standard or Multi-Function Group Control Panel (GCP) is used in conjunction with Standard or Multi-Function Motor Control Circuits (MCC) to operate up to 6N^o 24V permanent magnet motors to control the deployment and retraction of the FC1 Fire Curtains.

In normal conditions the GCP provides a 24V supply to the motors and the curtains are held in the retracted position in the headbox. When a fire alarm is activated the contact in the GCP is opened and the power is removed from the motors, releasing the curtains to deploy under gravity in a controlled manner (Gravity Fail Safe). When the fire alarm system is reset the GCP reinstates the 24v supply to the motors and the curtains are retracted to their normal position in the headbox. Current limiting switches detect when the curtain has fully retracted and the supply voltage to the motor is stepped down to a holding voltage.

In the event of a mains power failure: the 2N^o 12v 7ah back-up batteries supplied with the GCP can maintain full control of the system for up to 4-hours. If a fire alarm signal is activated during a mains power failure the Fire Curtains will deploy in a controlled manner as normal.

GROUP CONTROL PANEL (GCP) - FEATURES & OPTIONS

LED status Indicators - LEDs on the front of the Standard GCP display the status of the mains supply, battery charge, alarm and any fault in the CPU. The Multi-Function GCP has extra LEDs that display if a delay timer or override function is active.

Manual override - Facility to temporarily raise all the curtains connected to the GCP after deployment, for emergency egress.

Two stage descent - Programmable timer delay that deploys the curtain in two stages to allow egress before full deployment of the curtain.

Delayed descent - Programmable timer delay of up to 90 seconds after the fire alarm signal is activated before full deployment of the curtain.

Delayed ascent - Programmable timer delay of up to 90 seconds after the fire alarm signal is reset before retraction of the curtain.

GCP interlinking - Enables multiple GCP's to be connected when more than 6 motors are controlled by one alarm signal, to ensure synchronisation of curtain descent and retraction.

Heat or Smoke detector - Can be used in place of, or in combination with, the main fire alarm signal (Requires a manual reset button).

AV facility - An Audio Visual Unit that activates to warn that the curtains are descending. Sounder beacons can also be used.

BMS connection - The GCP can be linked to a Building Management System to show the status of mains power, battery charge, alarm, timer delays and manual override.

Curtain released signal - Signal to the BMS to confirm that the curtain has been released.

Obstruction sensor - Gives a warning if there is an obstruction in the path of the curtain.

Table 3 - Option comparison between Group Control Panels

| Feature | Standard | Multi-Function GCP |
|---|----------|--------------------|
| Controls up to 6 motors | Yes | Yes |
| 2 x 12v 7ah backup batteries | Yes | Yes |
| Test key switch | Yes | Yes |
| LED status indicators | Yes | Yes |
| Manual override (requires push button) | No | Yes |
| Two stage descent facility (requires brake motor) | No | Yes |
| Delayed descent | No | Yes |
| Delayed ascent | No | Yes |
| GCP interlinking | No | Yes |
| Heat or smoke detector with manual reset button | Option | Option |
| AV connection facility | No | Option |
| Building Management System (BMS) connection | No | Option |
| Obstruction sensor facility | No | Option |
| Curtain released signal facility | No | Option |

GCP SPECIFICATION

| | |
|-----------------------|--|
| Power Input | 230Vac 50Hz |
| Alarm Input | Normally closed. Open on fire alarm activation. Configured to be fail safe. |
| Dimensions and finish | Hinged door, white painted mild steel enclosure 396mm High x 334mm Wide x 105mm Deep |

FIRE & SMOKE

MOTOR CONTROL CIRCUIT (MCC)

Controlled curtain descent – Back electromotive force (EMF) of the curtain motor ensures the controlled gravity fail safe deployment of the curtains.

45 / 90 second ascent run timer – For longer curtain drops the run timer can be set to 90 seconds to ensure the curtain retracts fully into the headbox.

Current controlled ascent – When the curtain has fully retracted the motor voltage is reduced. No limit switches are required.

127 motor control – Larger 127mm diameter rollers/motors can be used for large/heavy curtains.

Table 4 – Option comparison between Motor Control Circuits

| Feature | Standard MCC | Multi-Function MCC |
|---|--------------|--------------------|
| Controlled curtain descent | Yes | Yes |
| 45 or 90 second ascent run timer | Yes | Yes |
| Current controlled ascent (no limit switches) | Yes | Yes |
| Two stage descent facility (requires brake motor) | No | Yes |
| Larger 127mm motor control facility | No | Yes |

MCC SPECIFICATION

| | |
|-----------------------|--|
| Input voltage | 27Vac / 24Vdc |
| Output voltage | 24Vdc |
| Dimensions and finish | White painted mild steel enclosure 145mm High x 250mm Wide x 50mm Deep |

WARRANTY

A manufacturer’s warranty is provided for a period of one year. Exclusions may apply if any element is sublet to an unauthorised party.

CONTACT

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