Smokeshield S® Concertina Smoke Curtain Specification

Concertina System

Performance Requirement

The Smokeshield S® Concertina Smoke Curtain shall be supplied and installed in accordance with AS1905.2:2005 except that the primary means of activation is to be from an AS1670.1:2018 smoke detection system and the fire rating is not required.

The smoke curtain shall comply with the NCC2022 Specification 21 (NCC2019 Spec E2.2b) requirements for smoke baffles/curtains, and AS2665:2001/ AS1668:2016. The fabric barrier shall have fire hazard properties of a Group 1 rating when tested in accordance with NCC2022 S7C4 (NCC2019 Spec C1.10: 4).

The system shall deploy to 2.1m above floor level, or the required depth dictated by AS2665:2001/AS1668:2016.

The smoke baffle/curtain shall not deflect more than 15 degrees from the vertical. When installed, gaps along the vertical sides shall not exceed 30mm.

Product Specified

Smokeshield S® Concertina Smoke Curtain by Smoke Control T: 1300 665 471; info@smokecontrol.com.au or approved equivalent.

System Parameters

1) Fire performance (AS1530.4:2014) – N/A
2) Air leakage performance (AS1530.7:2007) – ≤ 0.093 $m^3/min/m^2$ @ 200°C, 25Pa
3) Maximum sizes:
    a) Single "leg" – 20000mm(L) x 4000m(H) per "leg" of curtain.
    b) System – Unlimited(L) x 4000mm(H)
4) Component dimensions:
    a) Headbox:
        i) Drop up to 3000mm(H) – 490mm(D) x 130mm(H)
        ii) Drop up to 4000mm(H) – 490mm(D) x 260mm(H)
    b) Side Guide (required only for a non-enclosed shape) – refer to product drawings for side guide sizes and surrounding wall integration
5) Deployment speed – nominally 150mm/s
6) Power requirements:
    a) 240V 10amp GPO and peak current draw 3.5amps per motor
    b) Nominally 1 motor per 6m of curtain run
7) Alarm input – 0V nominally closed contacts
8) Maximum pressure resistance
    a) Deploying – 0Pa
    b) Deployed – 40Pa
    c) For higher pressures please contact technical@smokecontrol.com.au
9) System weight:

a) System sizes up to 3000mm(H) – 40kg per metre length
b) System sizes up to 4000mm(H) – 45kg per metre length

10) Approved supporting construction:
    a) Masonry
    b) Concrete
    c) Fire-rated plasterboard with steel or timber stud
11) Approved installation configurations:
    a) Headbox:
        i) Fixed under the slab or into fire-rated bulkhead
    b) Side Guides:
        i) Face fixed to the wall

Required Ancillary Items

1) Control system: Shall allow fail safe operation on receipt of a general building alarm signal and automatic rewind on reset of the alarm from the Fire Indicator Panel (FIP) without the assistance of a technician. The Control system shall also provide an *anti-tilt* system to prevent uneven rewinding of the product and subsequent self-destruction.
2) Staged deployment: Staged deployment shall allow the fire curtain to deploy to 2m above the finished floor level, pause for 30 seconds and then deploy to the floor.
3) Battery back-up: Shall be installed to reduce the likelihood of nuisance deployments. Standard battery time is 4 hours, extended periods available on request.
4) Rewind switches (operating ΔPa = 0): Shall be installed on both sides/one side of the nominated smoke containment screens. They shall allow the system to rewind no more than 2.1m and redeploy within 20 seconds.
5) Exclusion zone sensors: IRS36 shall be installed in accordance with Smoke Control's recommendations to protect each fire curtain asset during normal building use and significantly increase the likelihood of full deployment when in fire mode.
6) Sounders and strobes: Shall be installed on both sides/on the same side as the egress path and operate on a signal from the FIP.
7) Fire-rated bulkhead: Shall be installed to provide an FRL of -/120/120 when fire tested in accordance with AS1530.4 and shall facilitate any service penetrations to be installed and certified in accordance with AS4072.1.
8) Maintenance: All fire curtains shall be listed on the Essential Services Register and shall be maintained by competent technicians in accordance with AS1851 and the manufacturer's recommendations.
9) Third-party product listing: The product shall be manufactured under the Third-Party Product Listing scheme known as the Warnock Hersey Mark and shall bear the Warnock Hersey Certification Mark.

Applications

- Atrium separation in leu of bounding walls in accordance with NCC2022 G3D3 and G3D4 (NCC 2019 G3.3 and G3.4.
- Non-required stairways, ramps, and escalators in accordance with NCC2022 D2D17 and Specification 14 (NCC2019 D1.12 and Spec D1.12)
- Protection of openings in fire compartment walls in accordance with NCC2022 C4D6 (NCC2019 C3.5)

- Separation of fire compartment where it exceeds maximum size or volume in accordance with NCC2022 Part C3 (NCC2019 C2)

Note: Some applications listed above may require a Performance Solution to be compliant. Please check with your Certifier prior to specifying this product.

Installation

Fire Curtains

The fire curtains shall be installed, certified, commissioned and tagged in accordance with AS1905.2:2005 by an ISO9001 Quality, ISO18001 WHS and ISO14001 Environment Accredited manufacturer.

When installed the system shall consist of a single overhead barrel for the full width of the opening. While some Registered Testing Authorities provide Formal Opinions regarding the expected fire resistance level of fire curtains, they do not discuss nor provide a warranty regarding their reliability. Experience shows that some manufacturer designs of fire curtains do not operate reliably once installed and attract extraordinarily high maintenance costs. For this reason, multiple barrel, overlapped fire curtains are deemed not equivalent to this specification on this project and shall not be substituted for a single barrel continuous span system.

Threshold

Unless addressed as part of an appropriate performance solution the curtain must deploy onto a fire-rated or non-combustible threshold as per requirements of AS1905.2:2005 and AS1530.4:2014. The maximum gap permitted at the threshold is 25mm.

Fire-rated Bulkheads

Installation of the fire curtains suspended below the concrete slab shall only be permitted if the system has been fire tested in this configuration and approved by a Registered Testing Authority for the sizes required in this project. That is, the suspension system is fully exposed to fire from both directions without protection of a fire-rated wall/bulkhead. If the system has not been fire tested in this configuration, a fire-rated bulkhead shall be installed to support the fire curtain system. For clarity, the fixing of the fire curtain head box shall be directly to the fire-rated bulkhead as per the fire tested prototype.

The fire-rated bulkhead shall be installed as a 3-sided bulkhead (the fourth side is provided by the concrete slab) to provide a minimum of -/120/120 fire resistance level when tested in accordance with AS1530.4 and provide complete encasement of the fire curtain suspension system. This configuration will allow for certification of any service penetrations which will also be required to be certified in accordance with AS4072.1.

Commissioning

Once installed it shall be demonstrated that the system shall fail safe close on loss of power using mains power in combination with battery backup and on the receipt of an alarm signal. On reset of power and the alarm signal the system shall automatically rewind to its standby position without the assistance of an occupant or technician.

The fire curtains shall also be commissioned in conjunction with the building's smoke management system. The smoke management system shall be balanced to operate without adverse effects to the fire curtain. The fire curtains must be tested a minimum of 3 consecutive times on general building alarm without failure.

The building's smoke management system shall not impede the operation of the fire curtain. A time delay of 60 seconds shall be incorporated into the smoke management system before it operates to allow the fire curtain to deploy to its fire mode position without interference. This shall be programmed within the Fire Indicator Panel. Consideration shall be made for the staged deployment of the fire curtain.

Similarly, a time delay of 60 seconds shall be incorporated into the reset of the alarm signal to fire curtain to ensure the smoke management system has ceased operation and the effects of pressure differentials have been dispersed prior to rewind of the curtain.

Certificates of Compliance shall be issued by the sub-contractor in accordance with NCC2022 A5G3 & A5G4 (NCC2019 A5.2 & A5.3) and AS1905.2:2005 *Clause 7 Certification*.

All details and approvals are current as of the date displayed. This document supersedes all previous versions.