

PROPRIETARY ITEM: FIBERHSIELD – Vs
AUTOMATIC OVERHEAD COILING TYPE FABRIC FIRE CURTAIN WITH SPRINKLER

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
1. Fire alarm or smoke detector-activated, overhead coiling fabric fire curtain.
 2. Self-closing without auxiliary power.
 3. For small and medium protected openings.
- B. Related Requirements:
1. Access Panels.
 2. Load Bearing Header Framing
 3. Finish: Powder coating of specified components.
 4. Detection and Alarm: Provision of fire alarm.
 5. Site Electrical: Provision of 240VAC, 10Amp General purpose outlets (GPO's)
 6. Product Electrical: System connection including cable glands, junction boxes, conductors, wiring devices, and backup power.

1.02 REFERENCES

- A. National Construction Code and Fire Engineers Report:
1. NCC 2014/2015
 2. FE Report Y; Version XX, Dated;
- B. Standards:
1. AS1670 – Automatic detection and alarm systems
 2. AS1530.4 – Methods for fire tests on building materials, components and structures, Part 4 Fire-resistance test of elements of construction.
 3. AS1905.2 – Fire Shutters.
 4. AS3837– Method of test for heat and smoke release rates for materials and products using an oxygen consumption calorimeter
 5. AS6905.1 – Smoke Doors
 6. AS1530.7 – Methods for fire tests on building materials, components and structures. Part 7 – Smoke control assemblies – ambient and medium temperature leakage test procedure.
 7. CE Mark

1.03 SUSTAINABLE DESIGN REQUIREMENTS

- A. ESD: Comply with sustainable design requirements including, without limitation, submittal and documentation requirements.
- B. Credit/Point Goals Applicable To This Section: In addition to global project credit/point goals:
1. Materials & Resources - construction waste management
 2. Materials & Resources - recycled content
 3. Materials & Resources - regional materials
 4. Indoor Environmental Quality - construction IAQ management plan

1.04 SUBMITTALS

- A. Comply with Submittal Procedures:
1. NCC Clause A2.4 Evidence of Suitability – submit full scale fire test report and Formal Opinion from a Registered Testing Authority clearly identifying maximum Fire Resistance Level and maximum allowable sizes.
 2. Manufacturers Product data
 3. Shop drawings:
 - i. Curtain location and unique identification number
 - ii. Include opening dimensions
 - iii. Show and identify related work performed under other sections of the specifications including access and electrical requirements
 4. Quality Assurance/Control Submittals:
 - i. Site Inspection and Test Plan.
 - ii. Manufacturers ISO 9001 Certificate of Accreditation

1.05 CLOSEOUT SUBMITTALS

- A. Comply with Project Closeout:
1. Certificate of Compliance with reference to Fire Engineers Report and Evidence of Suitability.
 2. Operation and maintenance manual.
 3. Manufacturer's warranty.

1.06 QUALITY ASSURANCE

- A. Certifications:
1. AS1530.4 full scale fire test on a complete assembly in a fire rated masonry/concrete wall to provide an FRL of -/120/-
 2. AS1530.4 full scale fire test on a complete assembly incorporating proprietary sprinkler system to provide an FRL of -/120/120
 3. National Construction Code Clause C1.10 when tested to AS3837
 4. AS1530.7 full scale air (smoke) leakage test on a complete assembly
 5. Laboratory cycle tested on a 3m x 3m complete assembly
- B. Pre-Installation Meeting:
1. Schedule and convene a pre-installation meeting prior to commencement of field operations with representatives of the following in attendance: Owner, Architect, General Contractor, fire curtain sub-contractor, mechanical sub-contractor, electrical sub-contractor, and ceiling/fitout sub-contractor
 2. Review substrate conditions, requirements of related work, installation instructions, storage and handling procedures, and protection measures.
 3. Document the responsibilities of various parties and deviations from specifications and installation instructions.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Comply with project delivery, storage, and handling requirements.
- B. Comply with manufacturer's instructions.

1.08 WARRANTY

- A. Provide manufacturer's standard one year warranty for Defect Liability Period.
- B. Provide manufacturer's standard 5 year product and installation warranty in conjunction with a Smoke Control's standard 5 + 5 year maintenance contract
- C. Maintenance and Testing:
 - 1. Perform minimum quarterly maintenance and testing on each fire curtain as required by the manufacturer's warranty, AS1851 - Maintenance, and as required by the Fire Engineers Report.
 - 2. Provide Commissioning documentation including Project name, project address, location and curtain number, number of cycles tested, observations, comments (eg: curtain out of alignment), notes (eg: curtain alignment repaired), Pass/fail.
 - 3. Re-certification after the defect liability period

PART 2 - PRODUCTS

2.01 MANUFACTURED UNITS

- A. Proprietary item; Model Fibershield - V automatic vertical fire curtain.
- B. Manufacturer:
 - 1. Distributed by Smoke Control Systems Pty Ltd, 26 Ferndell St, South Granville, NSW 2142, Australia www.smokecontrol.com.au
- C. Label each fire curtain with following information:
 - 1. Manufacturer's name and contact details.
 - 2. Curtain location and unique identification number
 - 3. Fire Resistance Level
 - 4. Date of installation

2.02 DESIGN CRITERIA

- A. Head box; Single span, continuous without overlap system of dimensions as follows;
 - i) Less than and equal to 3.5m drop = 200 H x 190 W mm
 - ii) Less than 6m drop = 250 H x 190 W mm
 - iii) Less than 9m drop = 290 H x 235 W mm
- B. Bearing type: Patented floating bearings with intermediate roller system for fault free operation.
- C. Side guide;

See manufacturer's literature for head box and side guide mounting options.

- i. Less than 6m drop; Type 105 E 105 mm x 74 mm concealed system
 - ii. Less than 9m drop; Type 140 E 140 mm x 74 mm concealed system
- D. Side guide restraint system; Patented double stitched pocket and continuous rod system for pressure resistance and premium performance.
- E. Fabric type; 660g/m² stainless steel woven fabric, incorporating a coated glassfibre material to reduce radiant heat transmission.
- F. Motor type; Gravigen 240V tubular motor with mechanical upper and lower limit settings

- G. Bottom bar; 65mm wide (at the base) heavy duty triangular section, requiring a 80mm min. slot in the ceiling lining.
- H. Accessories;
 - i. Self-levelling bottom bar cover
 - ii. Flush ceiling mounted radial obstruction sensors spaced as required
 - iii. Strobes and sounders
 - iv. Wall/podium mounted rewind button
- I. Finishes; Dulux Duralloy colour range (Standard)
- J. Load requirements at head = 25kg/m of width
- K. Load requirements at sides (only if side guide required) = 20kg/m of height
- L. Mounting orientation
 - 1. Installation Configuration: Housing attached directly to substrate above opening
 - 2. -/120/120 fire rated bulkhead to be constructed by others in accordance with Smoke Control drawings
 - 2. Fabricate and install mounting brackets, hardware, and fasteners needed to attach fire curtain assembly to building structure.
- M. Signage on curtain (standard stencils)
 - 1. Green running man (350 x 350mm)
 - 2. Arrows (350 x 190mm high)
 - 3. Fire Safety Curtain (150mm high x 1500mm long)
 - 4. Push Button (100mm high)

2.03 PERFORMANCE CRITERIA

- 1. Fire Resistance Level (FRL): -/120/120
- 2. FRL requires proprietary sprinkler head, spacing and flow rate. Contact supplier for details.
- 3. Smoke leakage: $\leq 25\text{m}^3/\text{hour}/\text{m}^2$ (fabric)
- 4. Group Number for fabric: 1 when tested in accordance with AS3837
- 5. Durability; medium – high duty – tested to 10,000 maintenance free cycles
- 6. Maximum pressure when fully deployed;
 - i. $\Delta 50\text{Pa}$ up to 100m^2 system
 - ii. $\Delta 100\text{Pa}$ up to 50m^2 system
- 7. Maximum allowable gap to non-combustible sill 25mm
- 8. Combustible floor coverings permitted at threshold (conditions apply)
- 9. Closing time of 100 - 200mm/sec
- 10. Time delay to required (exhaust/pressurization) fan speed = 60 seconds (min) – 90 seconds (max). Time is dependent on drop height of curtain.
- 11. Time delay for rewind; ensure fan speed is zero + 20 seconds prior to reset of alarm signal from FIP enabling curtain rewind.
- 12. Fail safe close on loss of power and/or signal trip using battery backup.
- 13. Motor rewind automatically on re-set of power and alarm signal, no service call needed.
- 14. Battery backup to reduce nuisance deploys required.
- 15. Commissioning shall be conducted in conjunction with Mechanical services and detection/alarm system. Systems shall be balanced to work together without over pressurizing the fire curtain.
- 16. Maintenance shall be conducted quarterly by the Manufacturer and/or their nominated representative to the Manufacturers recommendations.

2.04 COMPONENTS

- A. Curtain Fabric: Protex 1100.1 A2 - Glass fibre material with stainless steel wire reinforcement, coated on a single side with polyurethane.

- B. Side Guide Assembly: 2.0mm thick Zincalume mild steel incorporating no moving parts.
- C. Housing Type: 2.0mm thick galvanized mild steel head box incorporating motor brackets, and drive system
- D. Drive system: Drive shaft system forming a single continuous drive unit once installed. Powered by 240V motors and 240V motor controllers. All concealed within the head box structure.
- E. Bottom Bar: 1.6mm thick galvanized mild steel pan section
- F. Gravigen™ Rewind Motor
 - 1. Tubular motor with fail safe gravity deploy operation.
 - 2. Mechanical upper and lower limit setting
 - 3. 240 VDC.
- G. Control option 1:

RZ-7 Master control with AM-S slave control set
 - 1. Push button user interface and mode indicators
 - 2. Battery backup incorporating low voltage alarm
 - 3. 240 VAC power
 - 4. Normally closed 0 Volt alarm signal
- H. Control Option 2:

AM-S-EV Trigger unit (Master/slave required for widths greater than 16m wide).
 - 1. 240 VAC power
 - 2. Normally closed 0 Vol
 - 3. Optional rewind button

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates upon which work will be installed.
 - 1. Verify related work performed under other sections is complete and in accordance with shop drawings.
 - 2. Verify wall surfaces are acceptable for installation of fire curtain system components
 - 3. Verify setout point locations.
- B. Coordinate with responsible entity to perform corrective work on unsatisfactory substrates.
- C. Coordinate electrical interface and connection with Electrical sub-contractor.
- D. Coordinate fire and alarm interface with fire sub-contractor.
- E. Commencement of work by installer is acceptance of substrate.

3.02 INSTALLATION

- A. Install fire curtain system components in accordance with fire test approvals and manufacturer's installation instructions.

- B. While some Registered Testing Authorities provide Formal Opinions in regards to the expected fire resistance level of fire curtains, they do not discuss nor provide a warranty in regards to 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.
- C. Once installed it shall be demonstrated that the system shall gravity fail safe close on the receipt of an alarm signal or loss of power without the need of battery backup. On reset of power and the alarm signal the system shall automatically rewind to its standby position.

3.03 FIELD QUALITY CONTROL

A. Field Test 1: Calibration

Follow manufacturer's cycle test procedures prior to application of mechanical services.

1. Conduct a minimum of 10 consecutive, error free cycle tests
2. Complete Inspection and Test Plan

B. Field Test 2: Balancing test

Test operation on general alarm in conjunction with mechanical services

1. Adjust fan speed and activation timing to ensure pressure does not exceed $\Delta 25\text{Pa}$ across fire curtain and to minimize gaps at the sill.

C. Field Test 3: Commissioning

Test operation on general alarm (or zone alarm as required by Fire Engineers Report) by activating an adjacent smoke detector

1. Notify Owner's Representative, local Fire Services and alarm sub-contractor minimum one week in advance of scheduled testing.
2. Complete Commissioning submittals.

END OF SECTION