

AERODUCT[®]



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**Automatic
Fire Curtains**



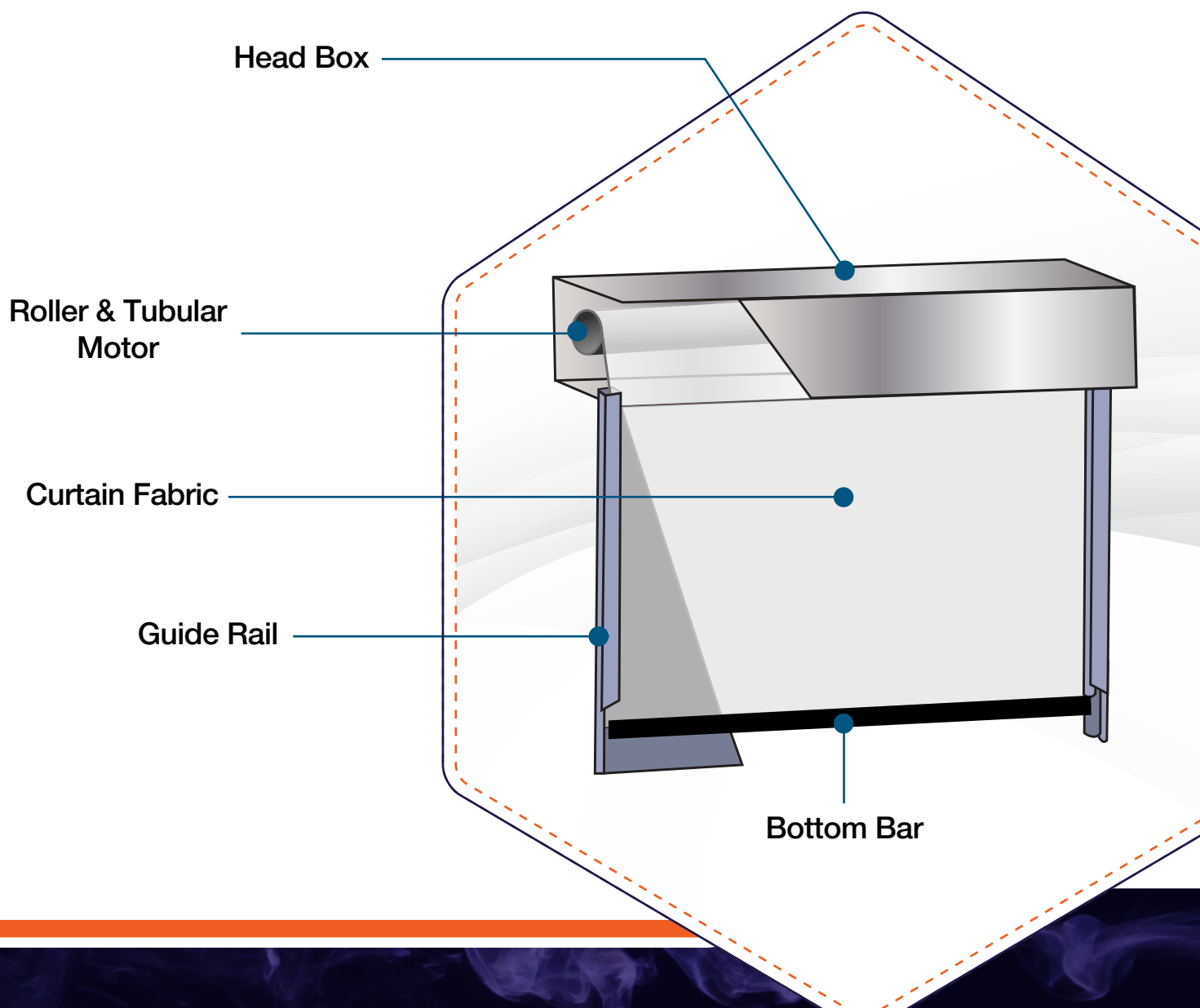
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INTRODUCTION

Aeroduct® Automatic Fire Curtains are physical barriers against the passage of fire remaining invisible while in their retracted position in the head box. Automatic Fire Curtains are life safety systems that are designed to arrest the spread of fire in a building. The assembly comprises of a fire resistant fiberglass fabric wound around a roller which is encased in a compact head box that is typically installed above the ceiling to be invisible until activated. The curtain descends at a controlled speed upon receipt of signal from a fire alarm and provides resistance for up to 240 minutes.

Aeroduct® Systems consist of fire resistant fabric wrapped around a motorized roller, fixed in a steel head box and a bottom bar incorporated with latest technological feature of Gravity Fail Safe systems. The bar results in stabilizing the curtains while operational by adding weight onto the curtain, ensuring a controlled rate of descent during a fire break out.





Head Box

The steel head box houses the roller, fabric and motor within the casing creating a small compact package that is above the ceiling and not visible.

The curtain head box is manufactured from 1.2 mm galvanised steel, the enclosure is rated at the same temperature as the curtain fabric. Removable cover plates are incorporated to allow access to the curtain rollers. Standard head box sizes are 190 mm x 190 mm for single rollers (maximum width 5.0 m) and 210 mm x 390 mm for multiple rollers (over 5.0 m wide). Larger head boxes may be required where the curtain drop is in excess of 3 m.

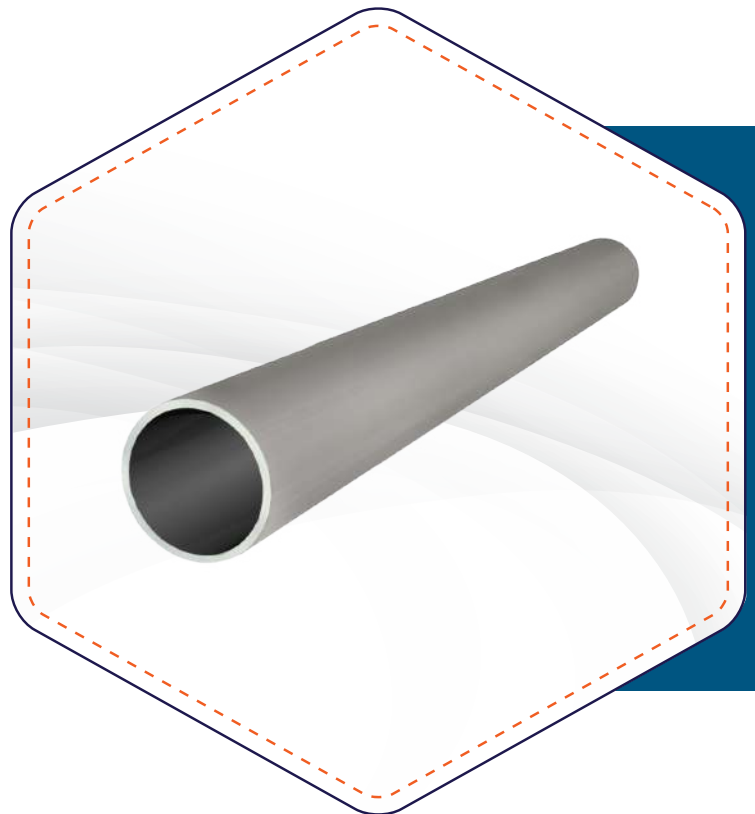
A suitably weighted bottom bar is provided to prevent deflection and ensure correct operation under gravity. The roller incorporates a 24volt d.c. motor, gearbox and a sealed heavy duty ball bearing assembly. A motor control circuit housed in a steel enclosure is mounted onto the motor end of the head box. The fabric curtain is manufactured from woven glass fiber cloth.

Over/under and side/side configurations for long runs of overlapping curtains. It can be powder coated to any RAL color.

Roller & Tubular Motor

A tubular motor drives a 76 mm steel roller tube to retract and deploy the fabric from normal position in the head box to its operational position.

- Permanent magnet 24V DC.
- Controlled speed of descent.
- Factory assembled and fitted inside roller barrel.
- Optional brake for 2-stage descent.
- One standard motor can lift a total curtain plus bottom bar weight of up to 18 kg.
- Two motors can be fitted to a single roller for heavier curtains.



Guide Rail

During deployment, slim steel side guides prevent derailment of the fabric during operation ensuring integrity of the system when faced by positive or negative pressures of a real fire.

100 mm x 50 mm x 2 mm rolled steel channel. Mandatory on fire curtains. Tested and certified to form an integral part of the barrier. The curtain edge incorporates durable tab mechanism that locks it to the guide. Direct fix through back of guide or side is fixed to the main structure.

Our fire curtain steel side guides can be powder coated to blend in with the surrounding wall. In a real fire, these guides help the curtains withstand positive and negative pressures. The stitched fabric inserted into the guide rail is provided with retainer tabs for added strength.

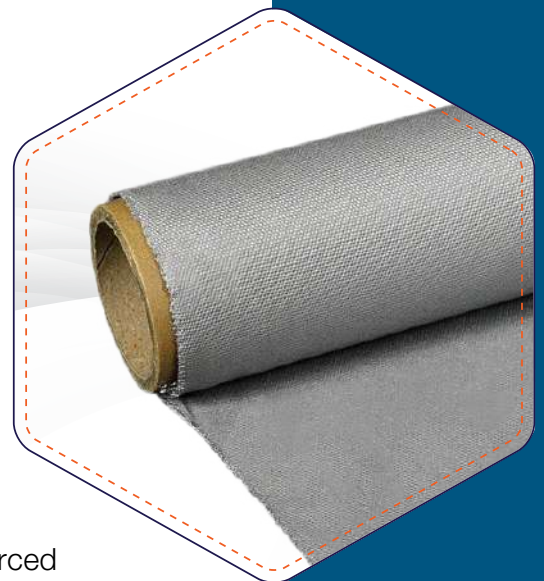
Designed to be slim and as unobtrusive as possible, the side guides can be fixed to the building structure in many ways as required. Our side guides are provided with capped holes that allow bolting the guides to the wall without the need for visible fixing angles, further reducing the guide footprint.



Curtain Fabric

An important component of a fire curtain system is the fabric. The fabric is designed to withstand heat and fire, including temperatures up to 1000 °C.

When tested in accordance with BS EN 1634-1 using the Aeroduct® GF660S material, the complete assembly achieved an integrity performance of up to 240 minutes. The fabric is woven glass fiber reinforced with stainless steel wire and coated with a fire retardant polyurethane including aluminum pigment on one side. The finished product is sewn with stainless steel reinforced thread at the hem and seam locations ensuring a factory produced, code compliant product.



Fabric Properties Table

Properties	GF660S
Integrity duration	Up to 240 minutes
BS 476 Parts 6 & 7	Class 0
Thickness	0.60 mm
Base fabric weight	660 gm/m ²
Coated fabric weight	710 gm/m ²
Stainless steel wire reinforced	Yes
Coated side	One side
Coating	Fire retardant polyurethane with aluminum pigment
Thread	Stainless steel
Standard color	Gray

Bottom Bar

The Aeroduct® Fire Curtain bottom bar provides weight and stability to the system ensuring a gravity fail safe deployment and to stabilize the curtain during descent.

Double 50 x 50 x 5 mm steel angles. A minimum of 4 kg weight per standard motor is required to ensure that the curtain deploys properly.



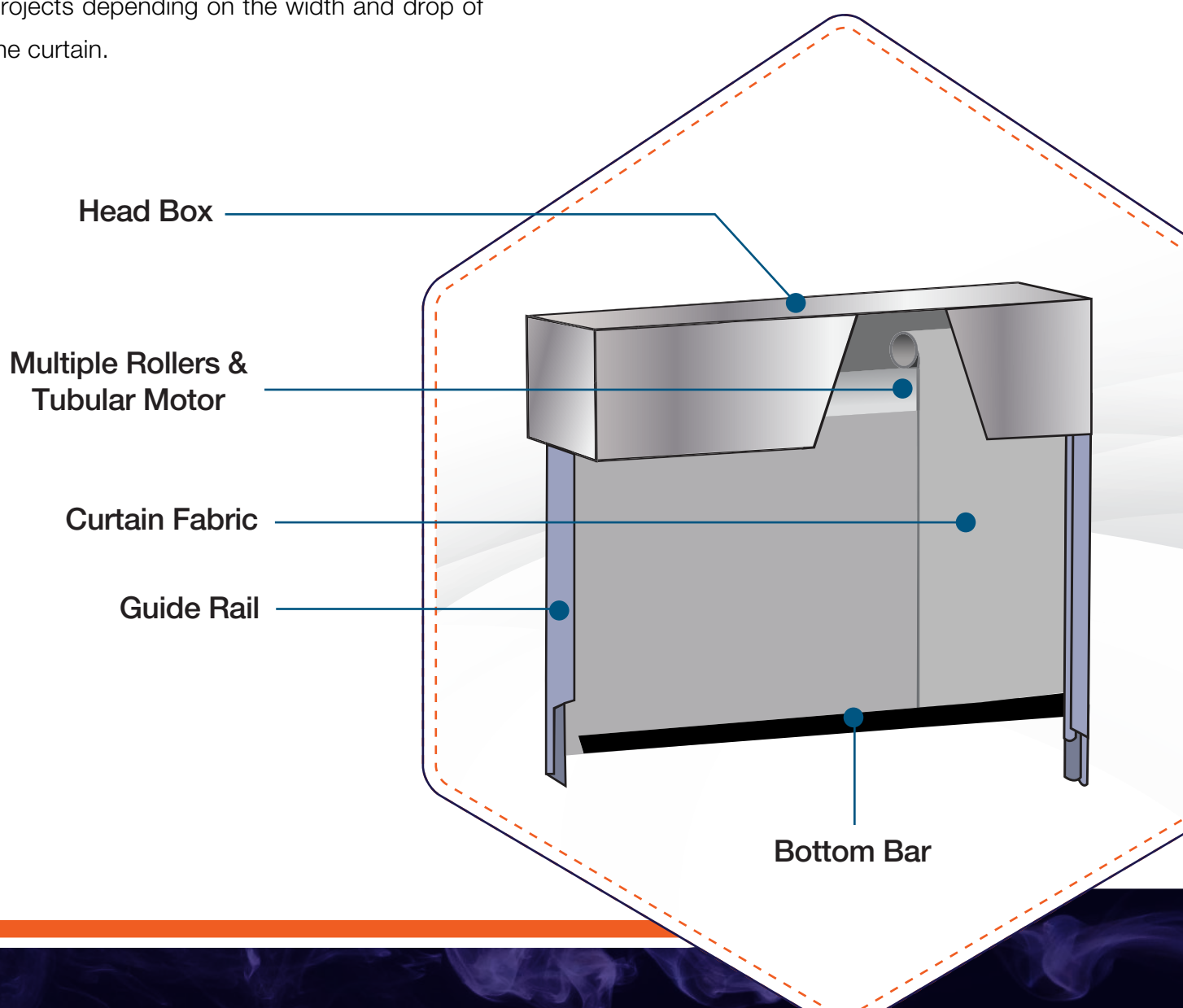
To achieve a virtually unlimited width without the need for intermediate guide rails, multiple rollers are arranged in an 'over-under' or side by side arrangement and neatly encased within the head box. Multiple rollers utilize the use of a 500 mm fabric overlap arrangement which removes the need for intermediate side guides and minimizes the potential for roller bounce.

Over-under Roller Arrangement

An over-under or side by side arrangement of the barrels (to suit the project requirements) allows multiple rollers to be enclosed in a single compact head box. 76 mm diameter x 4 mm thick welded steel tube as standard. Larger diameter tube can be used for EN projects depending on the width and drop of the curtain.

Conjoined Bottom Bar

A conjoined bottom bar runs throughout the entire width of the curtain.



Aeroduct® Automatic Electronic Control Systems

The system must provide for the fail safe movement of the curtain to the operational position on total loss of primary and auxiliary power. Under normal operating conditions the curtains would be held in the retracted position via the motors operating at low voltage. Upon activation of the fire alarm, the control panel will remove the supply voltage and the curtain will descend under the power of gravity in a controlled manner. A dynamic braking system housed in the motor control circuit controls the speed of descent of the curtain, this is electronically synchronised on overlapping curtains with a common bottom bar.

To retract the curtain, the control panel supplies 24v to the motor control circuits and the motors drive the curtains to the upper position. As the bottom bar or stopping bar hits the curtain head box, a current limiting circuit steps back the voltage and current, and holds the bottom bar in the retracted position.

Should the main power fail to the group control panel, the supply is automatically switched to the integral standby battery. The curtain remains in the retracted position for 1 hour (fully loaded system). The curtain will remain fully operational until the battery low voltage cut off facility reads a voltage of 21v, the curtains will then safely descend under the power of gravity to the operational position.

Motor Control Panel (MCP)

- Run timer (40/80 seconds).
- Controls curtain motor gravity fail safe descent.
- Current controlled curtain ascent with no motor limit switches.
- Option for 2 stage descent functionality with motor brake fitted.
- Separate Individual Override Interface (IOI) for emergency egress on a single curtain.



Group Control Panel (GCP)

Aeroduct® Group Control Panel consists of Controls up to 6 MCCs/motors, test key switch, 2 x 12v 7ah back-up batteries, LED status indicators.

Manual override for all curtains connected to a single GCP.



GCP Backup Batteries

2 x 12v 7ah back-up batteries. Used to hold the curtains up temporarily in the event of a main power failure. Continuously recharged. Typically 3 hours operation when no main power. Operational time will depend on number of motors and condition of the battery.

Group Control Panel (GCP) - Options

- Manual override facility
- Delayed descent/ascent
- Interlinking of multiple GCPs



Aeroduct® Tubular Motor

The Aeroduct® Tubular Motor is a permanent magnet DC electrical motor. When the curtains are retracted, the Aeroduct® Motor Controller (AMC) routes a 24v DC low voltage supply to the motor which keeps it in the retracted position.

When the fire alarm signal is triggered, the low voltage supply to the AMC is removed which in turn deploys the curtains to their fire operational position under the power of gravity.

Based on weight of the curtain, 20W and 40W Nominal Power are selected.

Applications

Void Edge Separation (Escalators & Stairs)

Escalators and stairs create gaps between floors. These gaps are critical points that need to be sealed off in the event of a fire to stop the spread of fire from lower to upper levels. By deploying on the upper level, fire curtains create a physical barrier against fire.

The fire curtain will fully encapsulate stairs or escalators to allow open plan designs replacing fire doors and lobbies.



Fire Compartmentalization

To prevent the spread of fire from one zone to another, fire curtains are a vital element of a fire compartmentalization strategy. On deployment, they create a physical barrier against the spread of fire and control their spread through a building.

Fire Strategy

Aeroduct[®] Automatic Fire Curtains are indispensable to a successful building fire strategy. Atria, lobbies and receptions create large open spaces that can be quickly engulfed in fire as it spreads from lower to upper levels. Spread of fire can be limited by fire curtains.



Aeroduct® Control Systems Operation

Operation in a Fire Scenario (Fire Alarm Signal Received)

The Aeroduct® Group Controller (AGC) is powered by a 230v AC, 3 Amp 50 Hz power supply. A pair of normally-closed, volt-free fire alarm contacts supplies the fire alarm signal when commanded by the Building Management System. In its stored position within the head box, the curtains remain retracted and held in place by a low voltage supply (24v DC) to the curtain motors. Upon receipt of a fire alarm signal, the supply to the motor controller is removed, which releases the curtains. Using Aeroduct's Gravity Fail Safe System, the curtains deploy to the operational position at a controlled rate under the force of gravity. No power source is required for curtain deployment.

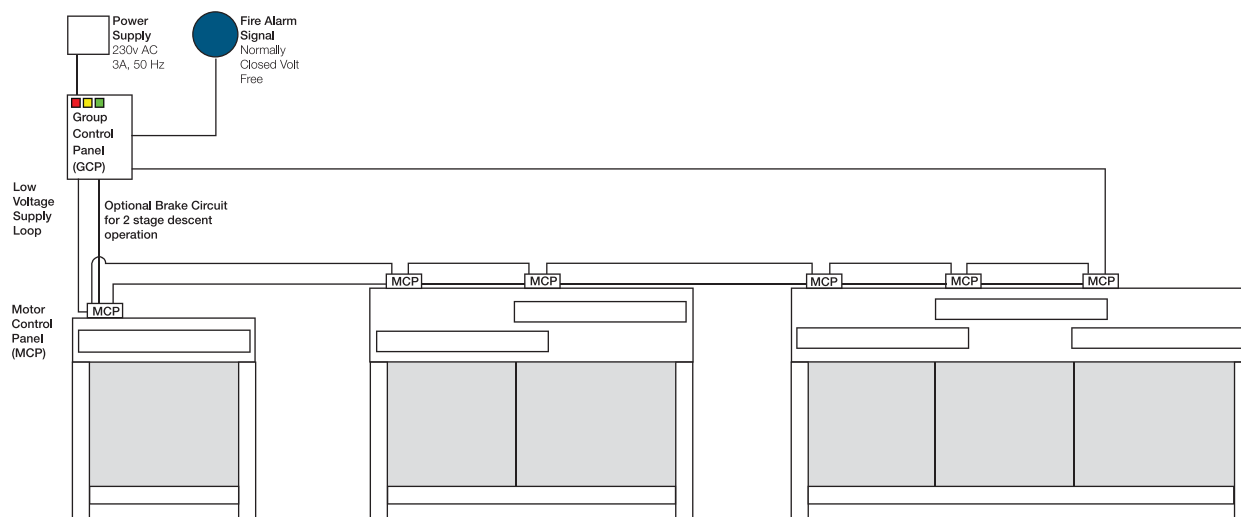
Operation in case of Loss of Power (Non-fire Scenario)

In the event of a mains power failure, each AGC is supplied with a battery back-up system providing up to a minimum of 60 minutes of power to the curtain motors. This prevents unintentional deployment of the curtain in a non-emergency situation. Upon exhausting the battery back-up, the curtain will descend safely under gravity.

One AGC has the ability to control a maximum of 6 no.x 20 Watt motor. If the number of motor exceeds 6, AGC's can be linked together. This avoids the need for each AGC to be supplied with its own fire alarm signal. This set up also ensures synchronous descent of multiple curtains. Should a 2 stage descent be required, a brake is added to the motor which is energised by an additional brake cable.

Optional Features

- Push button emergency override
- Individual curtain override
- Remote test key facility
- Obstruction sensor
- Heat detector
- 2 stage descent
- BMS link facility
- AV facility



Main Features

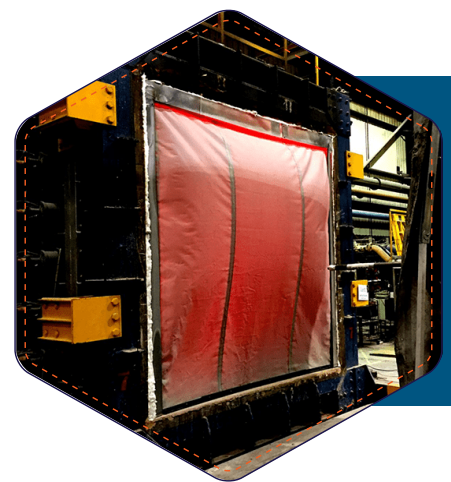
- Economical solution which often replace fixed walls, doors or other barriers. Simple and cost effective with faster lead times. It is low maintenance and long lasting with an in-depth design. Additionally, we provide technical and design assistance.
- 100% gravity fail safe descent (will operate without power), individual override operations, audio/visual alarms, emergency retract buttons, smart BMS modules, obstruction sensor and other as per the site requirement with best of R&D.
- Lightweight: Reduction in load bearing ramifications. It is easy to install.
- Design solution: Bespoke designs to fit all requirements and layouts, allow architectural freedom with space usage.
- Maintenance: The static curtain entail a very low level of maintenance
- Width and drops: Aeroduct® Fire Curtains are designed to cover unlimited width.

Fire Curtains Specification

Ratings

- **Integrity**

The most common rating requirement is 30, 60, 120, 180, 240 minutes rating. It is defined by the ability of the curtain to prevent or limit the spread of fire for the specified time.



Testing Standards

Aeroduct® Automatic Fire Curtains are tested in accordance with standards below:

Aeroduct® Automatic Fire Curtains	
Testing standards	BS EN 1634 - 1: 2014:- Fire resistance
	BS 476 Parts 6 and 7, Class 0:- Fabric
	Tested in single and multiple barrel orientation
Compliance	Certifire - third party accreditation
Fire resistance E	240 minutes for GF660S Fabric

Global Footprint



Sales Units



Sales & Manufacturing Units

Automatic
Fire & Smoke
Curtains



Hira WLL P.O. Box 31179, Doha, Qatar
Telephone: +974 4467 4779 | Email: enquiry@hiraqatar.com