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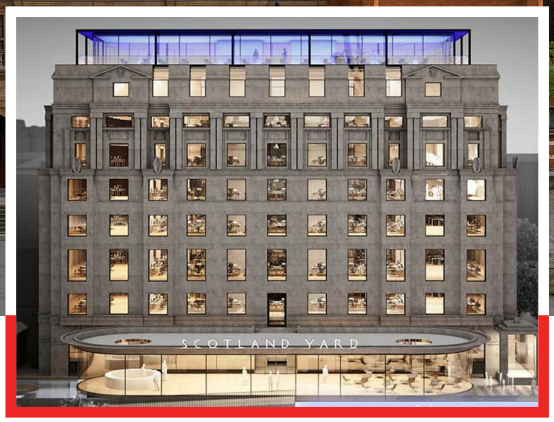
FIRE AND SMOKE CURTAIN AND FIRE SHUTTER PRODUCT GUIDE



FLAMESHIELD ENGINEERED FIRE SOLUTIONS, PROTECTING THE BUILDINGS OF THE PAST, PRESENT AND FUTURE

- Manufacture and Supply
- UK Installation and Service
- Global Export

MAY 2020

CONTENTS

COMPANY **INTRODUCTION** AND **HISTORY**

After school, I initially worked as a sub-contractor, fitting roller shutters. After a couple of years installing for others, I started to generate my own enquiries, exclusively through word of mouth. Increasingly frustrated with three and four week delivery times, I built my first roller shutter for Bob Towers who needed an immediate albeit temporary solution for his client Senator International's Manchester freight forwarding building, and in 1988, I founded A1 Shutters Limited. I bought our main 28000 square foot factory in 2000 and later invested in more industrial units, one of which holds our powder coating facilities. As a company, we have traded successfully, remained financially prudent and innovated considerably over thirty-two years and the A1S Group is now established as a leading UK and global manufacturer of fire and smoke curtains and fire shutters.

We have over 60 uniquely qualified employees, have successfully completed in excess of 30000 projects and export to over 35 countries across Europe, Africa, the Middle East and Asia. Our UK supply and installation division is often a UK tier one contractor's first point of call for fire and smoke curtains and fire shutters; and our trade department continues to supply highly valued long-term UK partners, notably Cooks of Norwich, Systons of Leicester and Stertil of Northampton. This comprehensive UK and global network of distributors, installers and our inhouse teams allows our manufactured fire products to be installed in many of the world's iconic buildings. It gives me enormous pride to walk through London, Manchester or Dubai knowing that so many famous buildings are protected with our engineered Flameshield fire products. Protecting life, and the buildings of the past, present and future continues to be our guiding motivation, which is why I have invested well in excess of £500000 in fire testing, audit fees, third party accreditations and product development alone. Successfully testing fire products requires time, money,

attention to detail, dedication and most of all, perseverance. Lots of it! But as of May 2020, this investment and commitment to product development uniquely positions the A1S Group as the ONLY global company with certification to manufacture BOTH fire curtains to the preeminent standard BS 8524 and CE marked fire shutters to either rigid or flexible structures under the latest harmonised legislation and directives.

As a company, we increasingly receive direct contact from fire strategists and the wider architectural community and I hope this guide, with its detailed specification and drawing resources, will be a comprehensive addition to understanding our Flameshield fire products and their potential life critical safety applications*. Likewise, if this is your first fire curtain or fire shutter project, you will find a helpful, experienced and proactive team, ready to take an initial email, webmail or phone enquiry and help you through to a compliant, cost effective and successful project conclusion.

Carl Everest
Managing Director
A1 Shutters Limited

*Specifications, data and drawing detail, particularly where relating to parameters and fire performance may be subject to change. Please always confirm your requirements at enquiries@a1shutters.co.uk

FLAMESHIELD **FIRE AND SMOKE CURTAIN** PRODUCT GUIDE

What is a Fire Curtain?

Similar in basic design to a roller shutter, a fire curtain comprises a fabric made of heavyweight glass fibre, reinforced with stainless steel wire and coated with a formulated fire retardant aluminium pigmented polyurethane coating. Specialist control systems allow a curtain to descend via a 24-volt gravity fail safe motor to compartmentalise a building. As well as a control panel which gives the fire curtain the ability for single descent or descend partially hold and continue descent, additional functionality can be achieved with the installation of egress switches, access switches, and single and light curtain obstruction warnings are also available. All of these ancillary products are tested in accordance with BS 8524-1, specifically Annex H. Relevant standards for a fire curtain are EN BS 1634-1(2014) under testing as active fire barriers or BS 8524-1 which adds to the fire performance standards of BS 1634. A1S has completed 16 separate tests under BS 8524. For more on BS 8524, please see section below. A fire curtain can be horizontal or more commonly vertical. A fire curtain can be either face fixed or reveal fixed but the structure into which a fire curtain is fitted cannot have a fire rating of less than the fire curtain. (Insert drawings) A1S group fire curtains provide 120 minutes integrity against flaming and hot gases and can achieve radiation ratings of either 85 minutes at 15kw/m2 or 120 minutes at 15 kw/m2 and as such are classified as either EW 60 or EW 120.

Flameshield EW 120 Fire Curtains installed in Manchester s Deansgate

What is a Fire and Smoke Curtain?

In the UK at least, this is the common term for a fire curtain with an engineered air leakage solution tested to EN BS 1634-3. Do not confuse this with a fire curtain with smoke control, all fire curtains give a degree of smoke control but this is not the same as a fire curtains AND smoke curtain. A fire curtain and smoke curtain must have been tested to fire curtain standards AND BS 476-31.1 or BS EN 1634-3 2004 for air leakage. See also Air leakage (smoke control) test data and classification for Flameshield Fire and Smoke Curtains section below.

What is a Smoke Curtain?

Usually constructed without guides, a smoke curtain is designed to channel smoke in the event of a fire and generally works in conjunction with a building's ventilation system. They have a UK and harmonised European testing standard of EN BS 12101-1 + A1. As a note, a smoke curtain is completely different to a fire AND smoke curtain.

FLAMESHIELD **FIRE AND SMOKE CURTAIN** APPLICATIONS

Our EW 60 and EW 120-minute fire curtains can help your building achieve your required integrity and radiation tenability.

A1S GROUP **FIRE** AND **SMOKE CURTAIN** PROJECTS THAT BEST EXEMPLIFY OUR BUILT OR IN PROGRESS **PORTFOLIO**

As a company we consistently have to comply with the requirements of global fire engineering consultancies including , Arup, Hoare Lea, BB7, and WSP and our products often form part of complex, engineered fire strategies.

Our portfolio of fire curtain projects stretches across all construction sectors. We have supplied and installed fire curtains to stadia, commercial offices (both fit out and new build), hospitals and extra care, residential, places of worship, manufacturing and industrial, retail and shopping malls, airports and travel hubs, restaurants and hotels, schools and universities, museums and galleries and government and military. Annoyingly from a marketing point of view, many of our most iconic projects are subject to non-disclosure agreement but think world famous companies and famous structures and you will not be too far off.

Bloomberg Building **London**

Bloomberg Building London. One Billion Pound Project built by contractor Sir Robert McAlpine and designed by Foster and Partners Architects

Client feedback is always important to our wider team and following faultless installation and commissioning, we received glassware and a letter from Michael Bloomberg.

> *"I want to personally thank the A1S Group for your hard work on the new Bloomberg European Headquarters. I am grateful for everything you did to bring this complex project to life."*

A1S Group fire curtains were chosen for their ability to achieve the required fire integrity, seamless reveal fix design (see drawing section) and control panel functionality and whilst Michael didn't win the 2020 Democratic Presidential nomination, the two buildings covered by an architectural arcade did at least win the 2018 RIBA Sterling Prize for architectural building excellence in the UK.

Burj Khalifa **Dubai**

Burj Khalifa, Dubai, the World's Tallest Building designed by Adrian Smith Architects.

A1S manufactured Flameshield 1634S fire curtains with air leakage to EN BS 1634-3 which were discreetly fitted 'reveal fix' throughout lift lobbies areas.

National Archive **London**

National Archive, London designed by AOC architects and in conjunction with Overbury

After a competitive tender process, the A1S Group were chosen for fire curtain works at the official archive of the UK government for England and Wales. The complex dates back more than 1,000 years and national treasures held include original copies of the Domesday Book and Magna Carta, as well as William Gladstone's 19th-century despatch box. The client required A1S to manufacture and install amongst others, a single fire curtain, with two stage descent to 8500mm width, with smoke seals, to achieve EN BS 1634-1 and EN BS 1634-3.

Royal Papworth Hospital **Cambridge**

Royal Papworth Hospital, Cambridge with Skanska and HOK Architecture and opened by the Queen in July 2018.

A1S were able to win this competitive package because of their extensive product range. We are not only leading manufacturers of fire and smoke curtains; we are leading manufacturers of fire rated shutters (see section two of this guide)and industrial shutters. This ability to provide the client with a "one stop shop", with the required accreditations and experience across a full range of active fire barriers guaranteed a tender win. The economies of a single contract, single pre-start with all the time and documentation savings and a single point of contact across three required packages proved to be a tempting and cost-effective proposal for Skanska. No other manufacturer could provide the required two hour rated fire shutters, security shutters and fire curtains. The restaurant, entrance atrium, retail areas and the pharmacy now benefit from Flameshield 1634S curtains and retail and restaurant areas are protected with Flameshield 120 Fire Shutters.

Project Oxygen With **Russell's Construction**

Project Oxygen with Russell's Construction, designed by 5Plus Architects

Our second major Manchester project for Russells Construction in Manchester to commence in 2020. Third-party accredited fire curtains to BS 8524-1 with a requirement for smoke leakage to EN BS 1634-3 are to protect this 31-storey neighbourhood and hotel in Manchester's emerging Piccadilly Basin district.

Goldman Sachs For **ISG**

Goldman Sachs For ISG and designed by Kohn Pedersen Fox Architecture, Gensler Architects and Perkins Will Architects

Bigger than 26 football pitches and complete with a roof garden and 350 seat auditorium, Goldman Sachs' £1.1 billion 10 storey European Headquarters at Plum Court, London was designed to meet the BREEAM Excellent rating for environmental performance. Coordinating nine distinct phases of works, the A1S Group manufactured and installed fire curtains to BS 8524 over an 18-month period.

Uclan Engineering Innovation Centre Preston **Lancashire**

UCLAN Engineering Innovation Centre Preston, Lancashire with BAM Construction and Architects Simpson Haugh and Partners

Based at the UCLAN's Preston campus, the new Engineering Innovation Centre (EIC) now acts as one of the driving forces behind the Lancashire Industrial Strategy addressing the need for innovation and producing the next generation of world-class engineers.

Cutting-edge research and teaching facilities include an additive manufacturing lab (3D printing), an advanced manufacturing workshop, an intelligent systems facility, a motorsports and air vehicles lab, a high-performance computing lab, a flight simulator suite as well as a fire, oil and gas facility. UCLAN is particularly renowned for its fire engineering post graduate courses and many of the engineers we regularly work with originally graduated from UCLAN which for us has a special synergy. BAM chose the A1S Group to manufacture and install fire curtains and smoke 'only' curtains to BS 12101. Works were completed over a three-month period and the EIC opened in 2019.

A1S GROUP **FIRE AND SMOKE CURTAIN** TESTING AND COMPLIANCE

With the adoption of BS 8524-1 and BS 8524-2 for fire curtains by Building Controls throughout the UK, national standards have now been elevated to a level which is both more robust and onerous than anywhere else in the world. To date, there remains no European harmonized standard for fire curtains, which are mostly specified in Europe to EN 1634-1 which is the fire test element only. Our point has always been, generating fire resistance data by passing a fire test alone (whilst an obvious starting point,) does not best guarantee mechanical performance over a life cycle, nor during a fire situation. BS 8524, both parts 1 and 2, in our case has meant an additional 16 tests over several years (see BS 8524-1 Test and Performance Matrix below). Third party factory and installation audits are now a fundamental requirement.

As a company we feel that the BS 8524 test regime far more accurately reflects the life cycle and functionality requirements of a fire curtain, in turn strengthening reliability, durability, impact testing, performance of the motor at elevated temperatures and installation best practice.

Fire resistance of fire curtains to BS EN 1634- 1 is measured in the following 3 ways.

I) **Integrity (E)** i.e. E120

II) **Radiation (W)** i.e. W60 or W120 Time elapsed before radiation reaches 15/kw/m2

III) **Insulation** (See notes below)

Note: W is classified in 30-minute increments (30/60/90/120) so our Flameshield 8524 is classified as EW 60 even though it has 120 minutes integrity and 85 minutes radiation. Our EW120 is exactly that, 120 minutes integrity and 120 minutes before 15kw/m2 was reached. In fact, at 120 minutes our Flameshield EW120 had only reached 10.7kw/m2 (See published data in next section)

Specifiers, PLEASE NOTE that without the use of sprinklers, no UK manufacturer currently offers a fire curtain with an EI rating. Further information on this confusing issue can be found at,

https://a1sgroup.com/blog/the-trouble-with-insulated-fire-curtains

Most fire tested curtains on the market will provide 120 minutes integrity, (E) i.e. prevention of flaming from one side of the curtain to the unexposed face. Some companies have purportedly tested in excess of 120 minutes integrity but general requirements are to a two hour limit in line with the fire rating of the building structure; the point being a 180 minute fire curtain will be on the floor after two hours if the structure has collapsed. As previously alluded to, it is also important to understand that fire curtains are not tested for insulation, rather radiation (W) is tested. EN BS 13501-2 (Fire classification of construction products and building elements Part 2: Classification using data from fire resistance tests, excluding ventilation services) states that,

Integrity E is the ability of the element of construction that has a separating function, to withstand fire exposure on one side only, without the transmission of fire to the unexposed side as a result of the passage of flames or hot gases....

....The assessment of integrity shall generally be made on the basis of the following three aspects:

- √ **cracks or openings in excess of given dimensions.**
- √ **ignition of a cotton pad; (But see below)**
- √ **sustained flaming on the unexposed side**

Classification for integrity (E) shall be according to whether or not the element is also classified for insulation (I, I1 or I2). Where an element is classified both for integrity and insulation, the value of integrity is that determined by whichever of the three aspects fails first.

> *"Where an element is classified without an insulation classification (i.e. for the classifications E, EW, RE and REW), the value of integrity is that determined by the time to failure of only the cracks/openings or sustained flaming aspects, whichever fails first."*
>
> Source BS EN 13501-2

And whilst our high performance Flameshield EW120 did not fail its cotton test until 64 minutes, as a company we never claim any insulation properties.

We only market our fire curtains on the basis of integrity and the radiation data generated under test conditions by Warrington Fire's radiometer. So EW 60 or EW 120.

Fire strategists and architects will be concerned with the radiation tenability on the unexposed side of the curtain, particularly around exit routes. Often it is pointed out to us that two-hour integrity (E120) is worthless if the curtain measures relatively high levels of radiation on the unexposed face during 15, 30- or 60-minute intervals. For example, 120 integrity /30 radiation, so EW30. Granted, fire strategists have numerous other factors to consider when forming a fire strategy with fire curtains but as a company, we believe the responsible thing to do is to transparently publish our data (as below) and allow qualified fire engineers to model accordingly. After all we are discussing the avoidance of secondary fires and untenable conditions for escaping inhabitants and emergency services.

Increasingly we have also noted that fire professionals want to further understand radiation levels at earlier time intervals rather than assess product suitability merely on the time elapsed before 15kw/m2 is reached. Tenability is critical.

FLAMESHIELD EW 120*		**FLAMESHIELD** 1634 or **8524***	
TIME ELAPSED (Minutes)	**RADIATION @ 15kw/m2 (W)**	**TIME ELAPSED (Minutes)**	**RADIATION @ 15kw/m2 (W)**
15	2.62	15	5.33
30	3.74	30	8.10
60	6.30	60	12.44
90	8.32	90	15.46
120	10.70	120	19.15

*The Flameshield EW 120 reached 132 minutes, still below 15 kw/m2, before the test was discontinued. The Flameshield 8524, 85 minutes before reaching 15kw/m2.

Without this thorough analysis of conditions on the unexposed face of the curtain the fire strategy can fail. As a further note, guidance can be found within BS 8524-2, which by means of an introduction comments that,

5.3.2 Radiation and tenability
5.3.2.1 General

Where radiated heat flux, as opposed to insulation, is to be used to assess whether conditions are tenable, one of the following approaches should be used:

a) **simplified approach for horizontal routes in dwellings (see 5.3.2.2);**
b) **fully fire engineered approach for horizontal escape routes;**
   NOTE Annex B gives an example of a fire engineered approach for horizontal escape routes.
c) **fully fire engineered approach for all other applications.**

DATASHEET: 4415-2-SP (SC)
Description

4415-2-SP (SC) is a heavyweight glass fabric which is reinforced with stainless steel wire, coated with a specially formulated fire-retardant aluminium pigmented polyurethane coating.

4415-2-SP (SC) provides high temperature resistance, and reflectivity which provide a heat reflecting surface as well as other properties for the manufacture of smoke, fire curtains and blinds, cavity wall fire barriers and other types of smoke and fire control systems. The material is halogen free, has an improved resistance to hydrolysis and offers a rigid handle.

TECHNICAL DATA				
BASE FABRIC			**TOLERANCE**	**TEST METHODS**
Yarn	Warp Weft	EC9 68 x 2 + IV1 S/S wire EC9 68 x 2 + IV1 S/S wire		DIN EN 12654
Thread Count	Warp Weft	16.0 per 1 cm 15.3 per 1 cm	±5%	DIN EN 1049
Tensile Strength (typical)	Warp Weft	930 N/cm 900 N/cm		DIN EN 12654
Weight		640 g/m2	±5%	DIN EN 12127
Weave		8 Shaft Satin		DIN ISO 9354

Coated Fabric

Coating Fire retardant polyurethane with added aluminium pigment on both sides

Weight		690 g/m2	±10%	DIN EN 12127
Thickness		0.54 mm	±10%	DIN ISO 4603/E
Tensile Strength (typical)	Warp Weft	500 N/cm 450 N/cm		DIN ISO 4606

Thermal conductivity (typical) Thermal resistance (typical)

0.0956 W/m "K DIN 52612 1/2
0.0079 m2 "K/W DIN 52612 1/2

Temperature Resistance -36 to 150 ° C
Tolerates 180 'C for short periods, Glass fibre fabric reinforced with stainless steel wire maintains its integrity up to 1100 'C

Fire Standards & **approvals** class O
EN 13501-1
BS 476 part 6:1989, Part 7 1997 A2,s1,d0 & BG

This material has been shown suitable for the manufacture of fire curtains rated for 2 hours according to BS 476 Part 20/22.

DATA SHEET : 4415-2-BL FOR FLAMESHIELD EW120

Description

4415-2-81 is a stainless steel wire reinforced glass fabric with a specially formulated intumescent fire retardant silicone elastomer. This is designed for applications including removable insulation covers, smoke and fire curtains, blinds, cavity wall fire barriers and other types of smoke and fire control systems. The material does not generate toxic emissions, and has a good resistance to hydrolysis whilst still having a flexible handle. When 4415-2-BI is exposed to temperatures in excess of 140°C the coating system will form an expanding intumescent char that provides a thermally insulating barrier.

TECHNICAL DATA				
BASE FABRIC			**TOLERANCE**	**TEST METHODS**
Yarn	Warp Weft	EC9 68 x 2/SS wire EC9 68 x 2/SS wire		
Thread Count	Warp Weft	16 per 1 cm 15.3 per1 cm	±5% ±5%	DIN 53 853 DIN 53 853
Weave		8 Shaft Satin		DIN ISO 9354
Base Fabric Tensile Strength (nominal)	Warp N/cm Weft N/cm	930 900		DIN 12654
Weight		640 g/m^2	±5%	DIN 53854

Coated Fabric

Coated with a silicone and intumescent graphite on both sides

Area Mass		1750 g/m2	±15%	DIN EN 12127
Thickness (nominal)		1.50 mm		DIN ISO 4603/E
Tensile Strength (nominal)	Warp N/cm Weft N/cm	600 600		DIN 12654
Temperature stability		-50 to 140° C		

Above 140° C the intumescent graphite will start to exfoliate, however glass fabric reinforced with tainless steel wire maintains some physical integrity up to 1100 °C

NAME OF LAB EXOVA NO.0833	SPONSOR A1 SHUTTERS LIMITED	TEST REPORT NO WF 347098	TEST METHOD EN 1634-3
TEST RESULTS	**LEAKAGE RATE**		
Pressure	**Positive**	**Negative**	
10 pa	2.18	2.08	
25 pa	**1.84**	**2.69**	
50 pa	3.29	5.77	

As stated previously, a fire and smoke curtain is a completely distinctive product from a smoke (only) curtain. For further details see web article.

https://a1sgroup.com/blog/rampant-confusion-fire-and-smoke-curtains-vs-smoke-curtains-which-standards-apply

Approved Document B (Fire Safety) of the Building Regulations requires door sets shall "meet the additional classification requirement of Sa when tested to BS EN 1634-3: 2004: Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware, Part 3 - Smoke control test for door and shutter assemblies".

The Sa classification specified within EN 13501-2:2007 requires that "the maximum leakage rate measured at ambient temperature, and at a pressure of up to 25 Pa, does not exceed 3m3/h per metre length of gap between the fixed and moveable components of the door set (e.g. between the fabric curtain and the side), excluding leakage at the threshold." Our Flameshield fire curtain achieved 1.84 m3/h positive and 2.69 m3/h negative, so well under the required 3 m3/h ceiling. As part of A1S' 2020 test programme under WF431715 further air leakage tests have been passed.

It is important to point out that no horizontal fire curtains provide smoke control to BS EN 1634-3 as this air leakage test is for vertical elements only.

FLAMESHIELD 8524 FIRE CURTAIN
Testing Matrix

TABLE 1 SUMMARY OF PERFORMANCE CHARACTERISTICS TO SECTION 5 OF BS 8524-1 : 2013				
PERFORMANCE MEASURE	**TEST REPORT NO.**	**CLAUSE WITHIN BS 8524**	**TEST METHOD**	**PERFORMANCE LEVEL**
Pressure and Impact	FM397694-2/404381	5.2	BS 5234-2	SD
Reliability and Durability of Barrier Assembly	Specimen 1 WF 340986 Specimen 2 WF404381 Specimen 3 WF403113	5.3.1	BS 8524-1 2013, Annex D	500 cycles, C1 classification
Response Time and Velocity	Specimen 1 WF 340986 Specimen 2 WF404381 Specimen 3 WF403113	5.4	BS 8524-1 2013, Annex D	Vertical <0.15m/s below heights of 2m
Smoke Containment	WF 431717	5.5	BS 476.31 or BSEN 1634.3 2004Annex F BS 8524	S2 or S
Fire Resistance, Integrity and Radiation	WF 341175 Iss. 2	5.6	BS EN 1634-1: 2008	Classified to BS EN 13501-2: 2007+A1 2009 as E120, EW 60
Deflection Zone	WF 341175 Iss. 2	5.6.5	BS EN 1634-1: 2008	60 mins-60mm / 120 mins 200mm
Motor operation	FM397694.1 WF399170 iss 2	5.6.6	BS 8524-1 2013, Annex G	Pass 62kg
Reaction To Fire	WF 399421 WF 409781	5.7	BS 476-6 and BS 476-7	Class 0
Ancillary Equipment*	FM 397694.3/404381	5.8	BS 8524-1 :2013 Annex H	All Passed

*Single Beam Detector, Fire Alarm, Smoke Detector, Heat Detector, Egress Switch with Control Failure, Access Switch with ControlFailure, Multi & Delayed Deployment, Short Circuit Test Secondary Power

See also https://a1sgroup.com/blog/the-difference-between-fire-curtains-accredited-to-en-bs1634-and-bs8524

UKAS accredited certifications, with an overview of the requirements and the client benefit

"UKAS accredited third party certification is the gold standard for fire curtains."

FLAMESHIELD 1634-1/3 FIRE CURTAIN
Testing Matrix

SUMMARY OF PERFORMANCE CHARACTERISTICS				
PERFORMANCE MEASURE	**TEST REPORT NO.**	**OVERVIEW**	**TEST METHOD**	**PERFORMANCE LEVEL**
Fire Resistance, Integrity and Radiation	WF 341175 Iss. 2	5.6	BS EN 1634-1: 2008	Classified to BS EN 13501-2: 2007+A1 2009 as E120, EW 60
Deflection Zone	WF 341175 Iss. 2	5.6.5	BS EN 1634-1: 2008	60 mins-60mm / 120 mins 200mm
Smoke Containment	WF 431717 WF 366619 WF347098 WF387924	1634-3 Without Seals Classification COSa Smoke Leakage Test to 1634-3 Increased Size Smoke Leakage 10000x5.630	BS 476.31 or BSEN 1634.3 2004Annex F BS 8524	S2 or S

*Single Beam Detector, Fire Alarm, Smoke Detector, Heat Detector, Egress Switch with Control Failure, Access Switch with ControlFailure, Multi & Delayed Deployment, Short Circuit Test Secondary Power

See also https://a1sgroup.com/blog/the-difference-between-fire-curtains-accredited-to-en-bs1634-and-bs8524

UKAS accredited certifications, with an overview of the requirements and the client benefit

"UKAS accredited third party certification is the gold standard for fire curtains."

PRODUCT CERTIFICATION SCHEME SDP11-02

Certificate number: IFCC 1542

This is a product certificate to certify that

A1 Shutters Limited

Raikes Lane Industrial Estate,
Raikes Lane,
Bolton BL3 2NH

Who fabricate the following product:

Product Type:	Active Fire Curtain Barrier Assembly
Product Name:	Flameshield Fire Curtain
Construction Type:	Single
Fabric Type:	4415-2-SP
Product Standard:	BS 8524-1:2013
Fire Resistance:	120 minutes Integrity (E) and 60 minutes Radiation (EW) performance to EN 1634-1:2014+A1:2018 (EN 1363-1:2012 & EN 1363-2:1999)
Classification:	E15, E20, E30, E45, E60, E90 & E120 plus EW60 to EN 13501-2:2016

*have satisfied the requirements of scheme SDP11-2 this includes evaluation of the product performance in accordance with **BS 8524-1:2013**, inspection of the Factory Production Control and continuing surveillance audits and testing of samples of products taken from production. The product specification and field of application are detailed in the Schedule referenced below.*

Schedule ref: FSA_20356_01
First Issued: 27 February 2020
Valid to: 26 February 2025
Issue No: 1

Ian Woodhouse
Director of Certification

UKAS PRODUCT CERTIFICATION
175

IFC Certification Ltd, 20 Park Street, Princes Risborough, Buckinghamshire, HP27 9AH, UK,
Tel: +44 (0)1844 275500 Fax: +(0)1844 274002 E-mail: info@ifccertification.com Web: www.ifccertification.com
Registered No: 4777898 England

certifire

CERTIFICATE OF APPROVAL
No CF 5335

This is to certify that, in accordance with
TS00 General Requirements for Certification of Fire Protection Products
The undermentioned products of

A1 SHUTTERS GROUP

Jackson Works, Raikes Lane Industrial Estate,
Raikes Lane, Bolton, BL3 2NH

Tel: 01204 383839, Fax: 01204 381686

E-mail : sales@A1shutters.co.uk

Have been assessed against the requirements of the Technical Schedule(s) denoted below and are approved for use subject to the conditions appended hereto:

CERTIFIED PRODUCT	TECHNICAL SCHEDULE
Flameshield Fire Curtains	TS30 – Industrial Type Fire Resisting Doorsets

This certification is provided to the client for their own purposes and we cannot opine on whether it will be accepted by Building Control authorities or any other third parties for any purpose.

Signed and sealed for and on behalf of Warringtonfire Testing and Certification Limited

Paul Duggan
Certification Manager

Issued: 22nd June 2015
Reissued: 22nd June 2020
Valid to: 21st June 2025

UKAS accredited third-party fire curtain certification means that independent UKAS accredited organizations (in our case Warrington Fire and IFC) have reviewed the manufacturing process of our Flameshield fire curtain range through regular inspection and factory audit and have independently determined that the final product complies with specific standards for safety, quality and performance. Over the past years and particularly since the Grenfell tragedy, the wider UK fire industry and local Building Controls expressly insist on such third-party accreditations and will often not sign off a project without them. Likewise our regional Civil Defense approvals and Certificates of Conformity for our valued Middle East partners require such third party accreditations to underpin their regional compliance.

Specifying Fire Curtains – With A Comprehensive Matrix, Specifications and Drawings

Required resources for fire and smoke curtain specification can be found in this section. As manufacturers we are not here to devise or comment on a professionally compiled fire strategy, although we will point out any apparent contradictions within an architectural specification i.e. mixing of contradictory British Standards. Certainly, UKAS accredited third party fire curtain accreditation (see below) is an important starting place and BS 8524-2 gives significant guidance to fire curtain specifiers. Page 5, section 4 covers the basics. For those new to fire curtain projects, we are here to help. If the question concerns our products and their testing and pricing detail, simply contact us by email, webchat or phone. If the question relates to the fire strategy or building regulations, we will be able to suggest who you should go to.

BS 8524-2 Page 5, section 4 states that,

"When specifying a barrier assembly, a full description of the barrier assembly should be provided, including the level of fire resistance required. The description should include the following:

a) **overall size (length and drop);**
b) **mode of operation;**
c) **details of surrounding building structure;**
d) **minimum integrity time;**
e) **permitted deflection zone, where applicable;**
f) **radiation limit, where applicable;**
g) **requirement for smoke seals, where applicable.**

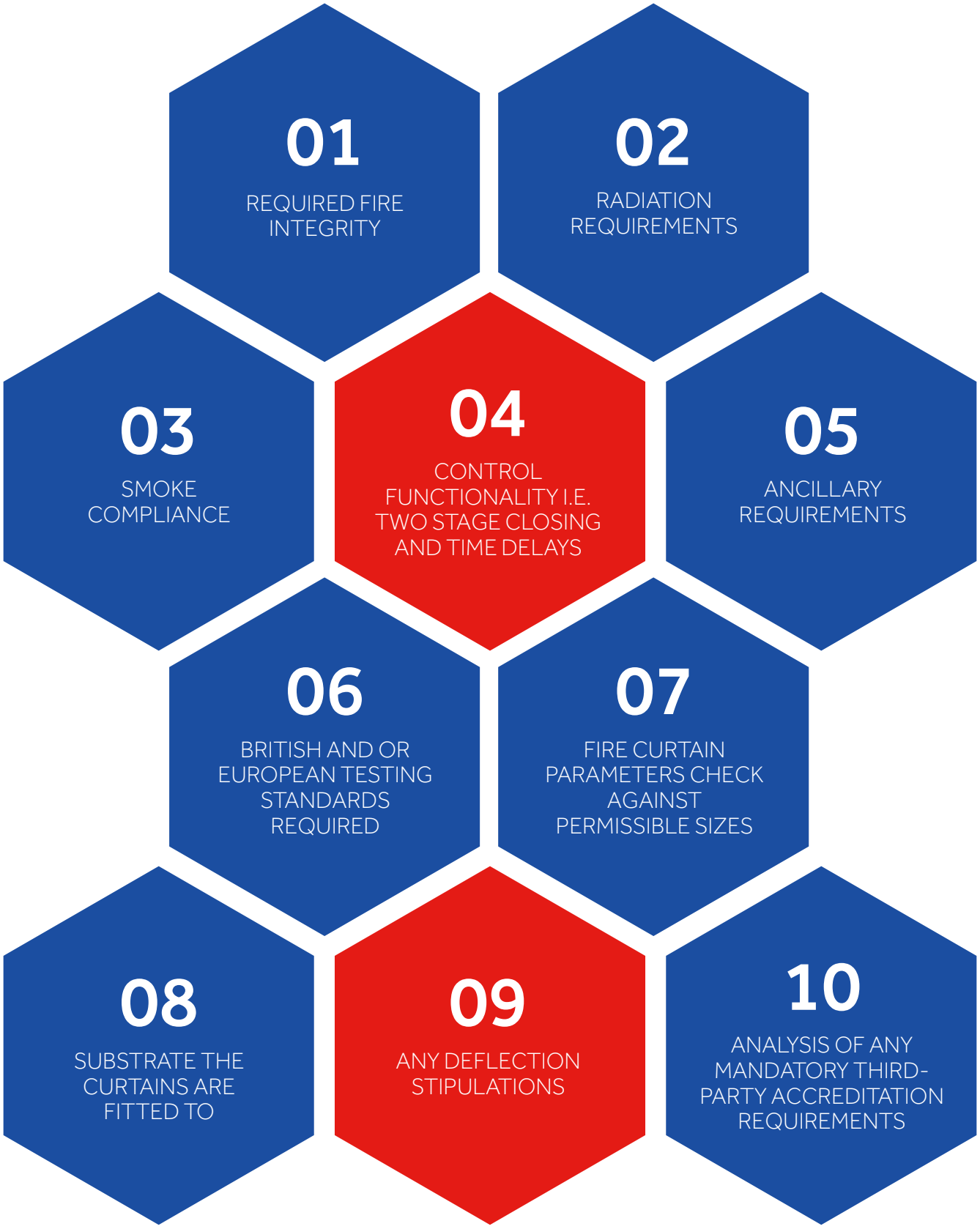
In dwellings, where the barrier assembly protects a means of escape, a smoke leakage system should be fitted.

In the case of a barrier assembly, it is only the complete assembly, as described in the relevant fire test report, which should be deemed to provide the required performance."

Fire resistance is a property that can be possessed only by a complete construction, and not by the individual components or materials from which the construction is formed.

Source BS 8524-2 2013 Page 5 Section 4

As manufacturers and installers, to reiterate, we are not here to devise a fire strategy, nor are we qualified to do so. As such, this note is orientated towards those who are involved in the contractor procurement process, and to those who have to interpret client requirements and procure on their behalf. Our role is to thoroughly scrutinise any architectural specification, fire strategy, or building control requirements, references, and inferences, then marry (if our product range allows), THE CORRECT type of fire curtain, control systems and ancillary devices to your client strategy. To that end, it is imperative as a company standard, we cover the following ten-point checklist on every single enquiry:



A1S GROUP **FIRE AND SMOKE CURTAIN** SPECIFICATION
UK SUPPLY - INSTALL AND GLOBAL EXPORT

PRODUCT NAME	BRITISH STANDARD	INTEGRITY E	RADIATION W @ 15kw/ m^2	SMOKE TO BS1634-3	MAX WIDTH	MAX HEIGHT	CONTROL PANEL	SPEC SHEET	CAD DRAWING	BIM
Flameshield 8524	BS 8524	120	85	N/A	8 metres*	8 metres	P1000	SS01	CD01	BIM01
Flameshield 8524 S	BS 8524	120	85	Yes	8 metres*	8 metres	P1000	SS02	CD02	BIM01
Flameshield 8524 OV	BS 8524	120	74	N/A	30 metres	8 metres	P1000	SS03	CD03	BIM02
Flameshield 1634	EN BS 1634	120	85	N/A	8 metres*	8 metres	P100A1SB	SS04	CD04	BIM03
Flameshield 1634 S	EN BS 1634	120	85	Yes	8 metres*	8 metres	P100A1SB	SS05	CD05	BIM03
Flameshield 1634 OV	EN BS 1634	120	74	N/A	30 metres	8 metres	P100	SS06	CD06	BIM04
Flameshield EW120	EN BS 1634	120	120	N/A	8 metres*	8 metres	P100	SS07	CD07	BIM05
Flameshield EW120 S	EN BS 1634	120	120	Yes	8 metres*	8 metres	P100	SS08	CD08	BIM05
Flameshield Horizontal	EN BS 1634	120	30	N/A	12 metres	3 metres	P100	SS09	CD09	BIM06
Ancillary Items	EN BS 1634/BS 8524	N/A						SS10	CD10	BIM07

*To a maximum of $32m^2$

Simply click on blue boxes for relevant specification and drawings or email our helpful technical sales team on **enquiries@a1sgroup.com**

A1S Group, Raikes Lane Industrial Estate, Bolton, BL32NH England 01204 383839

*Additional parameters may be available, please contact us directly for discussion. Likewise, Size restrictions may apply depending on application.

FLAMESHIELD 8524 FIRE CURTAIN
24 VOLT TUBE MOTOR (1HR, 2HR) BS 8524

APPROVED STANDARDS

BS 8524-1
BS 8524-2
BS EN 1634-1:2014
BS 476 : Part 6
BS 476 : Part 7
BS EN 12605
BS EN 14600
BS EN 13501-2
BS EN 16034 (New European Standard)
BS 8524-1 Reliability and Durability
BS 8524-1 Response Time and Velocity
BS 8524-1 Fire Resistance to EN BS 1634-1
Reaction to Fire (BS 476-6/ 476-7 or 13501-1)
BS 8524-1 Deflection Zone
BS 8524-1 Motor Test Pass
BS 5234-2 Impact Test Pass
BS 8524-1 Annex H For All Ancillary Products – Smoke alarm, heat alarm, egress switch, key switch, access switch, single beam obstruction warning, light curtain obstruction warning
BS 8524-1 Annex D
(PAS 121 is no longer current, it was withdrawn by the British Standards Institute on the 31 July 2013, please see above relevant standards).

RADIATION PERFORMANCE
124 minutes < 20kW/m^2
85 minutes <15kW/m^2
Test discontinued at 130 minutes

INTEGRITY
60 minutes 1 Hour integrity
120 minutes 2 Hour integrity

FIRE CURTAINS

Product Construction All A1S Group fire curtains are manufactured and produced in accordance with the parameters and technical respects indicated within the specification, which was submitted to the Warrington Fire Research Establishment. The curtains constructed to Warrington Fire Research Centre, the test is in accordance with BS EN 1634-1 for Fire and Radiation (Radiation replaces the insulation zone), as part of EN13501 the fabric has been successfully tested to BS EN 13823 SMOGRA (SMOKE GROWTH RATE), and the results were well within "O" and the s1 desired criteria.
Manufactured in accordance with Warrington test WF 341175 and the new European Standard BS EN 16034.

Basic description the automatic curtains comprise of a mild steel barrel and motor incorporating an attached fabric curtain, the barrel deflection conforms to the necessary British Standard BS 6323-5, the fabric can withstand temperatures in excess of 10000C the unique 2 section bottom rail allows smooth operation of the curtain. The fire barrier shall be powered by an internal 24v DC electric motor that has all of the applicable safety standards.

FLAMESHIELD 8524 FIRE CURTAIN
24 VOLT TUBE MOTOR (1HR, 2HR) BS 8524

Fabric fire curtains are formed from a fire rated fabric 0.54mm thick stainless steel wire reinforced, with a specially formulated aluminium pigmented and fire retardant polymer which provides a heat reflecting surface as well as other properties for smoke and fire.

The fabric has been independently tested for fire propagation in accordance with BS 476-6 in addition to this it also conforms to BS 476-7 which relates to surface spreadof flame and in accordance with Approved Document B 2006. As a requirement of BS EN 1634-1, the fabric and curtain are tested as a complete assembly in compliance with BS EN 1363-1 and BS EN 1363-2.

Radiation (Fire curtains are now measured by radiation not insulation zone), this is tested in accordance with BS EN 1363-2 : 1999, at 1000mm from the fire curtain (the nearest tested point to the curtain), the maximum radiation should be no greater than 13.7kW/m2, the A1 curtain recorded 5.331 kW/m2 well within the permissible levels under BS 8524-2 2013 (5.3.2).

Sampling A representative of Warrington Certification Ltd conducted the sampling and selection of the tested specimen, this was to cover a requirement of EN 16034 the new European Standard.

Reliability, Response Time and Durability tests performed in accordance with BS 8524-1, Warrington Fire Report 340986 Barrel fire curtain barrels are manufactured from mild steel tube, tube size dependant on the overall size of the unit and deflection calculated to conform to British Standards.

Operation / Control System The fire curtain barrier shall meet the requirements of BS 8524-1and BS 8524-2 (where appropriate).

Tested to controlled speeds in all circumstances including gravity, closing to the operational position on total power failure with the no need for a secondary supply for regenerative absorption.

When the Barrier is retracted the armature shall be isolated from the supply and the barrier shall be locked in position with the electromagnetic brake. Thus ensuring the motor armature not damaged and the retracted position is maintained without drift.

The Barrier shall operate with the back up of secure gravity fail safe in accordance with BS 8524-1.

The Barrier shall move to the operational position, via controlled descent, when all primary and secondary power is exhausted. In the event of a mains power failure backup power shall be provided by the inbuilt secondary power source, the Barrier shall remain in the retracted position and continue to monitor the alarm and system inputs. If signalled to operate during this period the barrier shall operate as normal.

All Barriers shall have a current limit stall option in the retracted position to negate damage to ceilings and fascias.

The secondary supply voltage source is continually monitored. If the voltage becomes critically low the Barrier shall be signalled to close to the operational position (normally between 30 and 120 minutes).

FLAMESHIELD 8524 FIRE CURTAIN
24 VOLT TUBE MOTOR (1HR, 2HR) BS 8524

The Barrier shall move to the fire operational position with a velocity within the range of 0.06m/s to 0.15m/s in accordance with BS 8524-1

The Barrier shall require an alarm signal provided by the Electrical Subcontractor. This signal shall be volt free, normally closed (Open on alarm signal). Fire detection / alarm systems shall conform to BS 8524-1 (5.8.4)

Optional Extras :

- **Partial Drop**The Barrier shall have the facility to deploy to a pre-determined position to allow escape and initial smoke containment. The partial close position shall be site adjustable with an adjustable wait time in the partial close position of up to 10 minutes.
- **Emergency Retract** The Barrier can have an emergency retract interface forescape and emergency access. The interface shall be volt free, normally open(close on operation). The signal required shall be momentary with a siteadjustable retract time. The emergency retract facility shall be operational as longas there is primary / secondary power available.
- **Audio / Visual / Spoken Warning Unit** The Barrier has a volt free c/ocontact which indicates an active c/o (change over) contact which indicates anactive alarm signal. An Audio / Visual / Spoken warning unit can be interfacedwith this using power supplied by the primary / secondary source or via anexternal source.
- **BMS Interface** The Barrier has volt free c/o contacts to indicate whether thebarrier is fully open or fully closed.
- **Obstruction Devices**

    4) **Single Photo Cell Tested and Passed by Exova to BS 8524-1 Annex H**
    5) **Light Curtain Tested and Passed by Exova BS 8524-1 Annex H**
    6) **Light Curtain (Stand alone system) EN 12978:2003 +A1 2009**

FLAMESHIELD 8524S FIRE AND SMOKE CURTAIN (1HR, 2HR) BS 8524-1 24 VOLT TUBE MOTOR

APPROVED STANDARDS

BS 8524-1
BS 8524-2
BS EN 1634-1:2014
BS EN 1634-3
BS 476 : Part 6
BS 476 : Part 7
BS EN 12605
BS EN 14600
BS EN 13501-2
BS EN 16034 (New European Standard)
BS 8524-1 Reliability and Durability
BS 8524-1 Response Time and Velocity
BS 8524-1 Smoke Containment to 1634-3)
BS 8524-1 Fire Resistance to EN BS 1634-1
Reaction to Fire (BS 476-6/ 476-7 or 13501-1)
BS 8524-1 Deflection Zone
BS 8524-1 Motor Test Pass BS 5234-2 Impact Test Pass
BS 8524-1 Annex H For All Ancillary Products – Smoke alarm, heat alarm, egress switch, key switch, access switch, single beam obstruction warning, light curtain obstruction warning
BS 8524-1 Annex D
BS 8524-1 Annex F WF 387924 and WF 357928

(PAS 121 is no longer current, it was withdrawn by the British Standards Institute on the 31 July 2013, please see the above relevant standards in which Insulation was replaced with Radiation).

RADIATION PERFORMANCE
85 minutes <15kW/m^2
124 minutes < 20kW/m^2
Test discontinued at 130 minutes

INTEGRITY
60 minutes 1 Hour integrity
120 minutes 2 Hour integrity

Product Construction All A1S fire / smoke control curtains are manufactured and produced in accordance with the parameters and technical requirements indicated within the specification. All curtains are tested and approved by Warrington Fire Research Centre and Exova. Tests are fully compliant and in accordance with BS 8524-1 / BS EN 1634-1 for Fire and Radiation (Radiation & tenability replaces the insulation zone) and BS EN 1634-3 for smoke containment.
The construction and manufacture is in accordance with Warrington test WF 341175 (Deflection), WF 347098/WF 43175(smoke) WF 399170 (motor test) WF 39221 (Surface spread) Manufactured in accordance with certain sections of the new European Standard BS EN 16034 implemented in 2015.

Basic description the automatic curtains comprise of a mild steel barrel and motor incorporating an attached fabric curtain, the barrel deflection conforms to the necessary British Standard BS 6323-5, the fabric can withstand temperatures in excess of 10000C the unique 2 section bottom rail allows smooth operation of the curtain. The fire barrier shall be powered by an internal 24v DC electric motor that has all of the applicable safety standards.

FLAMESHIELD 8524S FIRE AND SMOKE CURTAIN (1HR, 2HR) BS 8524-1 24 VOLT TUBE MOTOR

Fabric fire curtains are formed from a fire rated fabric 0.54mm thick stainless steel wire reinforced, with a specially formulated aluminium pigmented and fire retardant polymer which provides a heat reflecting surface as well as other properties for smoke and fire.

The fabric has been independently tested for fire propagation in accordance with BS 476-6 in addition to this it also conforms to BS 476-7 which relates to surface spreadof flame and in accordance with Approved Document B 2006.

As a requirement of BS EN 1634-1, the fabric and curtain are tested as a complete assembly in compliance with BS EN 1363-1 and BS EN 1363-2.

Achieving an air permeability rate of <3m3/h/m, at a pressure of up to 25 Pa and in accordance with BS EN 1634-3.

Radiation (Fire curtains are now measured by radiation not insulation zone), is tested in accordance with BS EN 1363-2 : 1999, at 1000mm from the fire curtain (the nearest tested point to the curtain and at 15 minutes), the maximum radiation should be no greater than 13.7kW/m2, the A1 curtain recorded 5.331 kW/m2 well within the permissible levels under BS 8524-2 2013 (5.3.2).

Sampling a representative of Warrington Certification Ltd conducted the sampling and selection of the tested specimen, this was to cover a requirement of EN 16034 the new European Standard.

Reliability, Response Time and Durability tests performed in accordance with BS 8524-1, Warrington Fire Report 340986

Barrel fire curtain barrels are manufactured from mild steel tube, tube size dependant on the overall size of the unit and deflection calculated to conform to British Standards.

Operation / Control System the fire curtain barrier shall meet the requirements of BS 8524-1and BS 8524-2 (where appropriate)

Tested to controlled speeds in all circumstances including gravity, closing to the operational position on total power failure, with the no need for a secondary supply, for regenerative absorption.

When the Barrier is retracted the armature shall be isolated from the supply and the barrier shall be locked in position with the electromagnetic brake. Thus ensuring the motor armature not damaged and the retracted position is maintained without drift.

The Barrier shall operate with the backup of secure gravity fail safe in accordance with BS 8524-1.

The Barrier shall move to the operational position, via controlled descent, when all primary and secondary power is exhausted. In the event of a mains power failure backup power shall be provided by the inbuilt secondary power source, the Barrier shall remain in the retracted position and continue to monitor the alarm and system inputs. If signalled to operate during this period the barrier shall operate as normal.

FLAMESHIELD 8524S FIRE AND SMOKE CURTAIN (1HR, 2HR) BS 8524-1 24 VOLT TUBE MOTOR

All Barriers shall have a current limit stall option in the retracted position to negate damage to ceilings and fascias.

The secondary supply voltage source is continually monitored. If the voltage becomes critically low the Barrier shall be signalled to close to the operational position (normally between 30 and 120 minutes).

The Barrier shall move to the fire operational position with a velocity within the range of 0.06m/s to 0.15m/s in accordance with BS 8524-1

The Barrier shall require an alarm signal provided by the Electrical Subcontractor. This signal shall be volt free, normally closed (Open on alarm signal). Fire detection / alarm systems shall conform to BS 8524-1 (5.8.4)

Optional Extras : Tested to BS 8524-1 Exova 403113

- **Partial Drop**The Barrier shall have the facility to deploy to a pre-determined position to allow escape and initial smoke containment. The partial close position shall be site adjustable with an adjustable wait time in the partial close position of up to 10 minutes.
- **Emergency Retract** The Barrier can have an emergency retract interface forescape and emergency access. The interface shall be volt free, normally open(close on operation). The signal required shall be momentary with a siteadjustable retract time. The emergency retract facility shall be operational as longas there is primary / secondary power available.
- **Audio / Visual / Spoken Warning Unit** The Barrier has a volt free c/ocontact which indicates an active c/o (change over) contact which indicates anactive alarm signal. An Audio / Visual / Spoken warning unit can be interfacedwith this using power supplied by the primary / secondary source or via anexternal source.
- **BMS Interface** The Barrier has volt free c/o contacts to indicate whether the barrier is fully open or fully closed.
- **Obstruction Devices**

    1) **Single Photo Cell Tested and Passed by Exova to BS 8524-1 Annex H**
    2) **Light Curtain Tested and Passed by Exova BS 8524-1 Annex H**
    3) **Light Curtain (Stand alone system) EN 12978:2003 +A1 2009**

FLAMESHIELD 8524 OV FIRE CURTAIN 24 VOLT TUBE MOTOR (1HR, 2HR)

APPROVED STANDARDS

BS EN 8524-1:2013
BS EN 1634-1:2014
BS 476 : Part 6
BS 476 : Part 7
BS EN 12605
BS EN 14600
BS EN 13501-2
BS EN 16034 (New European Standard)
BS 8524-1 BS 8524-2

RADIATION PERFORMANCE
74 minutes <15kW/m^2

INTEGRITY
60 minutes 1 Hour integrity
120 minutes 2 Hour integrity

Parameters to 30 metres wide by 8 metres high

(PAS 121 is no longer current, it was withdrawn by the British Standards Institute on the 31 July 2013, please see above relevant standards).

FIRE CURTAINS

Product Construction All our fire curtains are manufactured and produced in accordance with the parameters and technical respects indicated within the specification, which was submitted to the Warrington Fire Research Establishment. The curtains constructed to Warrington Fire Research Centre, the test is in accordance with BS EN 1634-1 for Fire and Radiation (Radiation & tenability replaces the insulation zone) in accordance with BS 8524.
The construction and manufacture is in accordance with Warrington test WF 366190. Manufactured in accordance with certain sections of the new European Standard BS EN 16034 which will shortly be implemented.

Basic description the automatic curtains comprise of a mild steel barrel and motor incorporating an attached fabric curtain, the barrel deflection conforms to the necessary British Standard BS 6323-5, the fabric can withstand temperatures in excess of 10000C the unique 2 section bottom rail allows smooth operation of the curtain. The fire barrier shall be powered by an internal 24v DC electric motor that has all of the applicable safety standards.

Fabric fire curtains are formed from a fire rated fabric 0.54mm thick stainless steel wire reinforced, with a specially formulated aluminium pigmented and fire retardant polymer which provides a heat reflecting surface as well as other properties for smoke and fire.

The fabric has been independently tested for fire propagation in accordance with BS 476-6 in addition to this it also conforms to BS 476-7 which relates to surface spreadof flame and in accordance with Approved Document B 2006.

FLAMESHIELD 8524 OV FIRE CURTAIN 24 VOLT TUBE MOTOR (1HR, 2HR)

As a requirement of BS EN 1634-1, the fabric and curtain are tested as a complete assembly in compliance with BS EN 1363-1 and BS EN 1363-2.

Radiation The Flameshield 8524 OV achieved 74 minutes before reaching 15kw/m^2.

Sampling A representative of Warrington Certification Ltd conducted the sampling and selection of the tested specimen, this was to cover a requirement of EN 16034 the new European Standard.

Reliability, Response Time and Durability tests performed in accordance with BS 8524-1, Warrington Fire Report 367279.

Barrel fire curtain barrels are manufactured from mild steel tube, tube size dependant on the overall size of the unit and deflection calculated to conform to British Standards.

Operation / Control System

Tested to controlled speeds in all circumstances including gravity, closing to the operational position on total power failure with the no need for a secondary supply for regenerative absorption.

When the Barrier is retracted the armature shall be isolated from the supply and the barrier shall be locked in position with the electromagnetic brake. Thus ensuring the motor armature not damaged and the retracted position is maintained without drift.

The Barrier shall operate with the back up of secure gravity fail safe in accordance with BS 8524-1.

The Barrier shall move to the operational position, via controlled descent, when all primary and secondary power is exhausted. In the event of a mains power failure backup power shall be provided by the inbuilt secondary power source, the Barrier shall remain in the retracted position and continue to monitor the alarm and system inputs. If signalled to operate during this period the barrier shall operate as normal.

All Barriers shall have a current limit stall option in the retracted position to negate damage to ceilings and fascias.

The secondary supply voltage source is continually monitored. If the voltage becomes critically low the Barrier shall be signalled to close to the operational position (normally between 30 and 120 minutes).

The Barrier shall move to the fire operational position with a velocity within the range of 0.06m/s to 0.15m/s in accordance with BS 8524-1.

The Barrier shall require an alarm signal provided by the Electrical Subcontractor. This signal shall be volt free, normally closed (Open on alarm signal). Fire detection / alarm systems shall conform to BS 8524-1 (5.8.4).

FLAMESHIELD 8524 OV FIRE CURTAIN
24 VOLT TUBE MOTOR (1HR, 2HR)

Optional Extras :

- **Partial Drop** The Barrier shall have the facility to deploy to a pre-determined position to allow escape and initial smoke containment. The partial close position shall be site adjustable with an adjustable wait time in the partial close position of up to 10 minutes.
- **Emergency Retract** The Barrier can have an emergency retract interface for escape and emergency access. The interface shall be volt free, normally open (close on operation). The signal required shall be momentary with a site adjustable retract time. The emergency retract facility shall be operational as long as there is primary / secondary power available.
- **Audio / Visual / Spoken Warning Unit** The Barrier has a volt free c/ocontact which indicates an active c/o (change over) contact which indicates an active alarm signal. An Audio / Visual / Spoken warning unit can be interfaced with this using power supplied by the primary / secondary source or via an external source.
- **BMS Interface** The Barrier has volt free c/o contacts to indicate whether the barrier is fully open or fully closed.
- **Obstruction Device** An obstruction beam detection device, with on site adjustable time module between 5 minutes and 10 minutes, shall sound in the event of an obstruction being present as along as mains power is available. The obstruction device shall not stop the barrier from deploying it to its active position. Where sensory equipment for detecting obstructions to barrier assemblies is provided they shall conform with BS 8524-1 (5.8.5).

FLAMESHIELD 1634 FIRE CURTAIN
24 VOLT TUBE MOTOR (1HR, 2HR)

(For a fully tested 8524 curtain see spec sheets SS01/SS02/SS03)

APPROVED STANDARDS

BS EN 1634-1:2014
BS 476 : Part 6
BS 476 : Part 7
BS EN 12605
BS EN 14600
BS EN 13501-2
BS EN 16034 (New European Standard)
BS 8524-1 (Annex D only)

RADIATION PERFORMANCE
85 minutes <15kW/m^2

INTEGRITY
60 minutes 1 Hour integrity
120 minutes 2 Hour integrity

(PAS 121 is no longer current, it was withdrawn by the British Standards Institute on the 31 July 2013, please see above relevant standards).

FIRE CURTAINS

Product Construction All our fire curtains are manufactured and produced in accordance with the parameters and technical respects indicated within the specification, which was submitted to the Warrington Fire Research Establishment. The curtains constructed to Warrington Fire Research Centre, the test is in accordance with BS EN 1634-1 for Fire and Radiation (Radiation & tenability replaces the insulation zone). The construction and manufacture is in accordance with Warrington test WF 341175. Manufactured in accordance with certain sections of the new European Standard BS EN 16034 which will shortly be implemented.

Basic description the automatic curtains comprise of a mild steel barrel and motor incorporating an attached fabric curtain, the barrel deflection conforms to the necessary British Standard BS 6323-5, the fabric can withstand temperatures in excess of 1000oC the unique 2 section bottom rail allows smooth operation of the curtain. The fire barrier shall be powered by an internal 24v DC electric motor that has all of the applicable safety standards.

Fabric fire curtains are formed from a fire rated fabric 0.54mm thick stainless steel wire reinforced, with a specially formulated aluminium pigmented and fire retardant polymer which provides a heat reflecting surface as well as other properties for smoke and fire.

The fabric has been independently tested for fire propagation in accordance with BS 476-6 in addition to this it also conforms to BS 476-7 which relates to surface spreadof flame and in accordance with Approved Document B 2006.

As a requirement of BS EN 1634-1, the fabric and curtain are tested as a complete assembly in compliance with BS EN 1363-1 and BS EN 1363-2.

FLAMESHIELD 1634 FIRE CURTAIN
24 VOLT TUBE MOTOR (1HR, 2HR)

(For a fully tested 8524 curtain see spec sheets SS01/SS02/SS03)

Radiation (Fire curtains are now measured by radiation not insulation zone), is tested in accordance with BS EN 1363-2 : 1999, at 1000mm from the fire curtain (the nearest tested point to the curtain and at 15 minutes), the maximum radiation should be no greater than 13.7kW/m2, the A1 curtain recorded 5.331 kW/m2 well within the permissible levels under BS 8524-2 2013 (5.3.2).

Sampling A representative of Warrington Certification Ltd conducted the sampling and selection of the tested specimen, this was to cover a requirement of EN 16034 the new European Standard.

Reliability, Response Time and Durability tests performed in accordance with BS 8524-1, Warrington Fire Report 340986

Barrel fire curtain barrels are manufactured from mild steel tube, tube size dependant on the overall size of the unit and deflection calculated to conform to British Standards.

Operation / Control System The fire curtain barrier shall meet the requirements of BS 8524-1and BS 8524-2 (where appropriate).

Tested to controlled speeds in all circumstances including gravity, closing to the operational position on total power failure with the no need for a secondary supply for regenerative absorption.

When the Barrier is retracted the armature shall be isolated from the supply and the barrier shall be locked in position with the electromagnetic brake. Thus ensuring the motor armature not damaged and the retracted position is maintained without drift.

The Barrier shall operate with the back up of secure gravity fail safe in accordance with BS 8524-1.

The Barrier shall move to the operational position, via controlled descent, when all primary and secondary power is exhausted. In the event of a mains power failure backup power shall be provided by the inbuilt secondary power source, the Barrier shall remain in the retracted position and continue to monitor the alarm and system inputs. If signalled to operate during this period the barrier shall operate as normal.

All Barriers shall have a current limit stall option in the retracted position to negate damage to ceilings and fascias.

The secondary supply voltage source is continually monitored. If the voltage becomes critically low the Barrier shall be signalled to close to the operational position (normally between 30 and 120 minutes).

The Barrier shall move to the fire operational position with a velocity within the range of 0.06m/s to 0.15m/s in accordance with BS 8524-1.

The Barrier shall require an alarm signal provided by the Electrical Subcontractor. This signal shall be volt free, normally closed (Open on alarm signal). Fire detection / alarm systems shall conform to BS 8524-1 (5.8.4).

FLAMESHIELD 1634 FIRE CURTAIN
24 VOLT TUBE MOTOR (1HR, 2HR)

(For a fully tested 8524 curtain see spec sheets SS01/SS02/SS03)

Optional Extras :

- **Partial Drop**The Barrier shall have the facility to deploy to a pre-determined position to allow escape and initial smoke containment. The partial close position shall be site adjustable with an adjustable wait time in the partial close position of up to 10 minutes.
- **Emergency Retract** The Barrier can have an emergency retract interface forescape and emergency access. The interface shall be volt free, normally open(close on operation). The signal required shall be momentary with a siteadjustable retract time. The emergency retract facility shall be operational as longas there is primary / secondary power available.
- **Audio / Visual / Spoken Warning Unit** The Barrier has a volt free c/ocontact which indicates an active c/o (change over) contact which indicates anactive alarm signal. An Audio / Visual / Spoken warning unit can be interfacedwith this using power supplied by the primary / secondary source or via anexternal source.
- **BMS Interface** The Barrier has volt free c/o contacts to indicate whether thebarrier is fully open or fully closed.
- **Obstruction Device** An obstruction beam detection device, with onsiteadjustable time module between 5 minutes and 10 minutes, shall sound in theevent of an obstruction being present as along as mains power is available. Theobstruction device shall not stop the barrier from deploying it to its activeposition. Where sensory equipment for detecting obstructions to barrierassemblies is provided they shall conform with BS 8524-1 (5.8.5)

Lifts and lift lobbies continue to be the most frequent application for the Flameshield 8524 fire and smoke curtain range with a 120 integrity and 60 minutes radiation curtain at 15kw/m2 being the most requested specification with the provision of smoke leakage to EN BS 1634-3.

FLAMESHIELD 1634 "S" FIRE & SMOKE CURTAIN 24 VOLT TUBE MOTOR (1HR, 2HR)

(For a fully tested 8524 curtain see spec sheets SS01/SS02/SS03)

APPROVED STANDARDS

BS EN 1634-1:2014
BS EN 1634-3
BS 476 : Part 6
BS 476 : Part 7
BS EN 12605
BS EN 14600
BS EN 13501-2
BS EN 16034 (New European Standard)
BS 8524-1 (Annex D)

RADIATION PERFORMANCE
85 minutes <15kW/m^2

INTEGRITY
60 minutes 1 Hour integrity
120 minutes 2 Hour integrity

(PAS 121 is no longer current, it was withdrawn by the British Standards Institute on the 31 July 2013, please see above relevant standards).

Product Construction All our fire / smoke control curtains are manufactured and produced in accordance with the parameters and technical respects indicated within the specification, which was submitted to the Warrington Fire Research Establishment. The curtains constructed to Warrington Fire Research Centre, the test is in accordance with BS EN 1634-1 for Fire and Radiation (Radiation & tenability replaces the insulation zone) and BS EN 1634-3 for smoke containment.
The construction and manufacture is in accordance with Warrington test WF 341175.
Manufactured in accordance with certain sections of the new European Standard BS EN 16034 which will shortly be implemented.

Basic description the automatic curtains comprise of a mild steel barrel and motor incorporating an attached fabric curtain, the barrel deflection conforms to the necessary British Standard BS 6323-5, the fabric can withstand temperatures in excess of 1000C the unique 2 section bottom rail allows smooth operation of the curtain. The fire barrier shall be powered by an internal 24v DC electric motor that has all of the applicable safety standards.

Fabric fire curtains are formed from a fire rated fabric 0.54mm thick stainless steel wire reinforced, with a specially formulated aluminium pigmented and fire retardant polymer which provides a heat reflecting surface as well as other properties for smoke and fire.

The fabric has been independently tested for fire propagation in accordance with BS 476-6 in addition to this it also conforms to BS 476-7 which relates to surface spread of flame and in accordance with Approved Document B 2006.

As a requirement of BS EN 1634-1, the fabric and curtain are tested as a complete assembly in compliance with BS EN 1363-1 and BS EN 1363-2.

FLAMESHIELD 1634 "S" FIRE & SMOKE CURTAIN 24 VOLT TUBE MOTOR (1HR, 2HR)

(For a fully tested 8524 curtain see spec sheets SS01/SS02/SS03)

Achieving an air permeability rate of <3m3/h/m, at a pressure of up to 25 Pa and in accordance with BS EN 1634-3.

Radiation (Fire curtains are now measured by radiation not insulation zone), is tested in accordance with BS EN 1363-2 : 1999, at 1000mm from the fire curtain (the nearest tested point to the curtain and at 15 minutes), the maximum radiation should be no greater than 13.7kW/m2, the A1 curtain recorded 5.331 kW/m2 well within the permissible levels under BS 8524-2 2013 (5.3.2).

Sampling A representative of Warrington Certification Ltd conducted the sampling and selection of the tested specimen, this was to cover a requirement of EN 16034 the new European Standard.

Reliability, Response Time and Durability tests performed in accordance with BS 8524-1, Annex D Warrington Fire Report 340986.

Barrel fire curtain barrels are manufactured from mild steel tube, tube size dependant on the overall size of the unit and deflection calculated to conform to British Standards.

Operation / Control System The fire curtain barrier shall meet the requirements of BS 8524-1 and BS 8524-2 (where appropriate).

Tested to controlled speeds in all circumstances including gravity, closing to the operational position on total power failure with the no need for a secondary supply for regenerative absorption.

When the Barrier is retracted the armature shall be isolated from the supply and the barrier shall be locked in position with the electromagnetic brake. Thus ensuring the motor armature not damaged and the retracted position is maintained without drift.

The Barrier shall operate with the back up of secure gravity fail safe in accordance with BS 8524-1.

The Barrier shall move to the operational position, via controlled descent, when all primary and secondary power is exhausted. In the event of a mains power failure backup power shall be provided by the inbuilt secondary power source, the Barrier shall remain in the retracted position and continue to monitor the alarm and system inputs. If signalled to operate during this period the barrier shall operate as normal.

All Barriers shall have a current limit stall option in the retracted position to negate damage to ceilings and fascias.

The secondary supply voltage source is continually monitored. If the voltage becomes critically low the Barrier shall be signalled to close to the operational position (normally between 30 and 120 minutes).

The Barrier shall move to the fire operational position with a velocity within the range of 0.06m/s to 0.15m/s in accordance with BS 8524-1 Annex D.

FLAMESHIELD 1634 "S" FIRE & SMOKE CURTAIN 24 VOLT TUBE MOTOR (1HR, 2HR)

(For a fully tested 8524 curtain see spec sheets SS01/SS02/SS03)

The Barrier shall require an alarm signal provided by the Electrical Subcontractor. This signal shall be volt free, normally closed (Open on alarm signal). Fire detection / alarm systems shall conform to BS 8524-1 (5.8.4)

Optional Extras :

- **Partial Drop**The Barrier shall have the facility to deploy to a pre-determined position to allow escape and initial smoke containment. The partial close position shall be site adjustable with an adjustable wait time in the partial close position of up to 10 minutes.
- **Emergency Retract** The Barrier can have an emergency retract interface forescape and emergency access. The interface shall be volt free, normally open(close on operation). The signal required shall be momentary with a siteadjustable retract time. The emergency retract facility shall be operational as longas there is primary / secondary power available.
- **Audio / Visual / Spoken Warning Unit** The Barrier has a volt free c/ocontact which indicates an active c/o (change over) contact which indicates anactive alarm signal. An Audio / Visual / Spoken warning unit can be interfacedwith this using power supplied by the primary / secondary source or via anexternal source.
- **BMS Interface** The Barrier has volt free c/o contacts to indicate whether thebarrier is fully open or fully closed.
- **Obstruction Device** An obstruction beam detection device, with onsiteadjustable time module between 5 minutes and 10 minutes, shall sound in theevent of an obstruction being present as along as mains power is available. Theobstruction device shall not stop the barrier from deploying it to its activeposition. Where sensory equipment for detecting obstructions to barrierassemblies is provided they shall conform with BS 8524-1 (5.8.5)

FLAMESHIELD 1634 OV FIRE CURTAIN
24 VOLT TUBE MOTOR (1HR, 2HR)

(For a fully tested 8524 curtain see spec sheets SS01/SS02/SS03)

APPROVED STANDARDS

BS EN 1634-1:2014
BS 476 : Part 6
BS 476 : Part 7
BS EN 12605
BS EN 14600
BS EN 13501-2
BS EN 16034 (New European Standard)
BS 8524-1 (Relevant sections)

RADIATION PERFORMANCE
74 minutes <15kW/m^2

INTEGRITY
60 minutes 1 Hour integrity
120 minutes 2 Hour integrity

Parameters 30 metres wide by 8 metres high

(PAS 121 is no longer current, it was withdrawn by the British Standards Institute on the 31 July 2013, please see above relevant standards).

FIRE CURTAINS

Product Construction All our fire / smoke control curtains are manufactured and produced in accordance with the parameters and technical respects indicated within the specification, which was submitted to the Warrington Fire Research Establishment. The curtains constructed to Warrington Fire Research Centre, the test is in accordance with BS EN 1634-1 for Fire and Radiation (Radiation & tenability replaces the insulation zone).
The construction and manufacture is in accordance with Warrington test WF 366190. Manufactured in accordance with certain sections of the new European Standard BS EN 16034 which will shortly be implemented.

Basic description the automatic curtains comprise of a mild steel barrel and motor incorporating an attached fabric curtain, the barrel deflection conforms to the necessary British Standard BS 6323-5, the fabric can withstand temperatures in excess of 10000C the unique 2 section bottom rail allows smooth operation of the curtain. The fire barrier shall be powered by an internal 24v DC electric motor that has all of the applicable safety standards.

Fabric fire curtains are formed from a fire rated fabric 0.54mm thick stainless steel wire reinforced, with a specially formulated aluminium pigmented and fire retardant polymer which provides a heat reflecting surface as well as other properties for smoke and fire.

The fabric has been independently tested for fire propagation in accordance with BS 476-6 in addition to this it also conforms to BS 476-7 which relates to surface spreadof flame and in accordance with Approved Document B 2006.

As a requirement of BS EN 1634-1, the fabric and curtain are tested as a complete assembly in compliance with BS EN 1363-1 and BS EN 1363-2.

FLAMESHIELD 1634 OV FIRE CURTAIN 24 VOLT TUBE MOTOR (1HR, 2HR)

Radiation The Flameshield 1634 OV achieved 74 minutes before reaching 15kw/m2.

Sampling A representative of Warrington Certification Ltd conducted the sampling and selection of the tested specimen, this was to cover a requirement of EN 16034 the new European Standard.

Reliability, Response Time and Durability tests performed in accordance with BS 8524-1, Warrington Fire Report 367279.

Barrel fire curtain barrels are manufactured from mild steel tube, tube size dependant on the overall size of the unit and deflection calculated to conform to British Standards.

Operation / Control System

Tested to controlled speeds in all circumstances including gravity, closing to the operational position on total power failure with the no need for a secondary supply for regenerative absorption.

When the Barrier is retracted the armature shall be isolated from the supply and the barrier shall be locked in position with the electromagnetic brake. Thus ensuring the motor armature not damaged and the retracted position is maintained without drift.

The Barrier shall operate with the back up of secure gravity fail safe in accordance with BS 8524-1.

The Barrier shall move to the operational position, via controlled descent, when all primary and secondary power is exhausted. In the event of a mains power failure backup power shall be provided by the inbuilt secondary power source, the Barrier shall remain in the retracted position and continue to monitor the alarm and system inputs. If signalled to operate during this period the barrier shall operate as normal.

All Barriers shall have a current limit stall option in the retracted position to negate damage to ceilings and fascias.

The secondary supply voltage source is continually monitored. If the voltage becomes critically low the Barrier shall be signalled to close to the operational position (normally between 30 and 120 minutes).

The Barrier shall move to the fire operational position with a velocity within the range of 0.06m/s to 0.15m/s in accordance with BS 8524-1.

The Barrier shall require an alarm signal provided by the Electrical Subcontractor. This signal shall be volt free, normally closed (Open on alarm signal). Fire detection / alarm systems shall conform to BS 8524-1 (5.8.4)

FLAMESHIELD 1634 OV FIRE CURTAIN 24 VOLT TUBE MOTOR (1HR, 2HR)

Optional Extras :

- **Partial Drop**The Barrier shall have the facility to deploy to a pre-determined position to allow escape and initial smoke containment. The partial close position shall be site adjustable with an adjustable wait time in the partial close position of up to 10 minutes.
- **Emergency Retract** The Barrier can have an emergency retract interface forescape and emergency access. The interface shall be volt free, normally open(close on operation). The signal required shall be momentary with a siteadjustable retract time. The emergency retract facility shall be operational as longas there is primary / secondary power available.
- **Audio / Visual / Spoken Warning Unit** The Barrier has a volt free c/ocontact which indicates an active c/o (change over) contact which indicates anactive alarm signal. An Audio / Visual / Spoken warning unit can be interfacedwith this using power supplied by the primary / secondary source or via anexternal source.
- **BMS Interface** The Barrier has volt free c/o contacts to indicate whether thebarrier is fully open or fully closed.
- **Obstruction Device** An obstruction beam detection device, with onsiteadjustable time module between 5 minutes and 10 minutes, shall sound in theevent of an obstruction being present as along as mains power is available. Theobstruction device shall not stop the barrier from deploying it to its activeposition. Where sensory equipment for detecting obstructions to barrierassemblies is provided they shall conform with BS 8524-1 (5.8.5)

FLAMESHIELD EW 120 FIRE CURTAIN
24 VOLT TUBE MOTOR (1HR, 2HR)

APPROVED STANDARDS

EN BS 1634-1
BS 8524-1 Reliability and Durability (+500 cycles)
BS 8524-1 Response Time and Velocity
8 metres by 8 metres to a maximum of 32m²

RADIATION PERFORMANCE
120 Minutes < 15KW/m²
15 Minutes - 2.617KW/m²
30 Minutes - 3.748KW/m²
60 Minutes - 6.306KW/m²
90 Minutes - 8.328KW/m²
120 Minutes -10.708KW/m²

INTEGRITY	Sustained flaming Gap gauge Cotton Pad	32 minutes* 132 minutes* 64 minutes

Insulating Zone:

At the request of the sponsor the specimen was also evaluated against the performance requirements for 'Insulating Zone' as detailed within PAS 121. A movable thermocouple was positioned 50 mm in front of the test specimen and its position adjusted throughout the test so as to maintain a recorded air temperature as close to 180oC as possible. The measured distance between the thermocouple and the specimen (prior to deflection) throughout the test was as follows:

Time (minutes)	0	30	60	90	120
Distance from Specimen (prior to deflection)	50 mm	50 mm	50 mm	50 mm	50 mm
Actual Recorded Temperature	14°C	49°C	52°C	64°C	76°C

Product Construction All A1S fire / smoke control curtains are manufactured and produced in accordance with the parameters and technical requirements indicated within the specification. All curtains are tested and approved by Warrington Fire Research Centre and Element/Exova. Tests are fully compliant and in accordance with BS EN 1634-1 for Fire and Radiation (Radiation & tenability replaces the insulation zone although data is given for certain country requirements).

The construction and manufacture is in accordance with Warrington Test WF 405074 and Warrington Test WF 406515. Manufactured in accordance with certain sections of the European Standard BS EN 16034 implemented in 2015.

FLAMESHIELD EW 120 FIRE CURTAIN
24 VOLT TUBE MOTOR (1HR, 2HR)

Basic Description The automatic curtains comprise of a mild steel barrel and motor incorporating an attached fabric curtain, the barrel deflection conforms to the necessary British Standard BS 6323-5, the fabric can withstand temperatures in excess of 1000C the unique 2 section bottom rail allows smooth operation of the curtain. The fire barrier shall be powered by an internal 24v DC electric motor that has all of the applicable safety standards.

Fabric fire curtains are formed from a fire rated fabric 0.54mm thick stainless-steel wire reinforced, with a specially formulated aluminium pigmented and fire-retardant polymer which provides a heat reflecting surface as well as other properties for smoke and fire. The fire curtain fabric is referenced Valmeira 4415-2. An intumescent graphite coating was applied to both sides of the curtain.

As a requirement of BS EN 1634-1, the fabric and curtain are tested as a complete assembly in compliance with BS EN 1363-1 and BS EN 1363-2.

Sampling A representative of Warrington Certification Ltd conducted the sampling and selection of the tested specimen, this was to cover a requirement of EN 16034 the new European Standard.

Reliability, Response Time and Durability tests performed in accordance with BS 8524-1, Warrington Fire Report 406515

Barrel Fire curtain barrels are manufactured from mild steel tube, tube size dependant on the overall size of the unit and deflection calculated to conform to British Standards.

Operation / Control System The fire curtain barrier shall meet the requirements of BS 8524-1and BS 8524-2 (and is tested to Annex D)

Tested to controlled speeds in all circumstances including gravity, closing to the operational position on total power failure, with the no need for a secondary supply, for regenerative absorption.

When the Barrier is retracted the armature shall be isolated from the supply and the barrier shall be locked in position with the electromagnetic brake. Thus, ensuring the motor armature not damaged and the retracted position is maintained without drift.

The Barrier shall operate with the backup of secure gravity fail safe in accordance with BS 8524-1.

The Barrier shall move to the operational position, via controlled descent, when all primary and secondary power is exhausted. In the event of a mains power failure backup power shall be provided by the inbuilt secondary power source, the Barrier shall remain in the retracted position and continue to monitor the alarm and system inputs. If signalled to operate during this period the barrier shall operate as normal.

All Barriers shall have a current limit stall option in the retracted position to negate damage to ceilings and fascias.

FLAMESHIELD EW 120 FIRE CURTAIN
24 VOLT TUBE MOTOR (1HR, 2HR)

The secondary supply voltage source is continually monitored. If the voltage becomes critically low the Barrier shall be signalled to close to the operational position (normally between 30 and 120 minutes).

The Barrier shall move to the fire operational position with a velocity within the range of 0.06m/s to 0.15m/s in accordance with BS 8524-1 The Barrier shall require an alarm signal provided by the Electrical Subcontractor. This signal shall be volt free, normally closed (Open on alarm signal). Fire detection / alarm systems shall conform to BS 8524-1 (5.8.4)

Optional Extras :

- **Partial Drop** The barrier shall have the facility to deploy to a pre-determined position to allow escape and initial smoke containment. The partial close position shall be site adjustable with a time of up to ten minutes.
- **Emergency Retract** The barrier can have an emergency retract interface for escape and emergency access. The interface shall be volt free, normally open (close on operation). The signal required shall be momentary with a site adjustable retract time. The emergency retract facility shall be operational as long as there is a primary/secondary source or via an external source. (Optional Extra.)
- **Obstruction Warning Devices** Where sensory equipment for detecting obstructions to barrier assembly deployment is provided, e.g. a single or multi-beam detection system, when the barrier assembly is tested in accordance with Annex H, it shall provide a warning in accordance with 5.8.5.2. *NOTE A multi-beam detection system is required when the barrier assembly is intended to protect a means of escape route. For more information, see BS 8524-2.5.8.5.2* Warning shall commence between 5 min and 10 min after the obstruction occurs and may be audible, visual or both as appropriate for the application. It shall not be possible to manually reset the alarm while the obstruction is still in place. (Optional extra.)
- **Audio / Visual / Spoken Warning Unit** The barrier has a volt free c/o contact which indicates an active c/o (change over) contact indicating an active alarm signal. An Audio/Visual warning can be interfaced with this using power supplied by secondary source or via an external source. (Optional extra)
- **BMS Interface** The barrier has volt free c/o contacts to indicate whether the barrier is fully open or fully closed.

FLAMESHIELD EW 120 "S" FIRE CURTAIN 24 VOLT TUBE MOTOR (1HR, 2HR)

APPROVED STANDARDS

EN BS 1634-1
Classification C0 Sa WF 36619
EN BS 1634-3 Direct Field of Application
BS 8524-1 Reliability and Durability (+500 cycles)
BS 8524-1 Response Time and Velocity
8 metres by 8 metres to a maximum of 32m²

RADIATION PERFORMANCE
120 Minutes < 15KW/m²
15 Minutes - 2.617KW/m²
30 Minutes - 3.748KW/m²
60 Minutes - 6.306KW/m²
90 Minutes - 8.328KW/m²
120 Minutes -10.708KW/m²

INTEGRITY	Sustained flaming Gap gauge Cotton Pad	132 minutes* 132 minutes* 64 minutes

Insulating Zone:

At the request of the sponsor the specimen was also evaluated against the performance requirements for 'Insulating Zone' as detailed within PAS 121. A movable thermocouple was positioned 50 mm in front of the test specimen and its position adjusted throughout the test so as to maintain a recorded air temperature as close to 180oC as possible. The measured distance between the thermocouple and the specimen (prior to deflection) throughout the test was as follows:

Time (minutes)	0	30	60	90	120
Distance from Specimen (prior to deflection)	50 mm	50 mm	50 mm	50 mm	50 mm
Actual Recorded Temperature	14°C	49°C	52°C	64°C	76°C

Product Construction All A1S fire / smoke control curtains are manufactured and produced in accordance with the parameters and technical requirements indicated within the specification. All curtains are tested and approved by Warrington Fire Research Centre and Element/Exova. Tests are fully compliant and in accordance with BS EN 1634-1 for Fire and Radiation (Radiation & tenability replaces the insulation zone although data is given for certain country requirements) The construction and manufacture is in accordance with Warrington Test WF 405074 and Warrington Test WF 406515. Manufactured in accordance with certain sections of the European Standard BS EN 16034 implemented in 2015.

FLAMESHIELD EW 120 "S" FIRE CURTAIN 24 VOLT TUBE MOTOR (1HR, 2HR)

Basic Description The automatic curtains comprise of a mild steel barrel and motor incorporating an attached fabric curtain, the barrel deflection conforms to the necessary British Standard BS 6323-5, the fabric can withstand temperatures in excess of 1000C the unique 2 section bottom rail allows smooth operation of the curtain. The fire barrier shall be powered by an internal 24v DC electric motor that has all of the applicable safety standards.

Fabric fire curtains are formed from a fire rated fabric 0.54mm thick stainless-steel wire reinforced, with a specially formulated aluminium pigmented and fire-retardant polymer which provides a heat reflecting surface as well as other properties for smoke and fire. The fire curtain fabric is referenced Valmeira 4415-2. An intumescent graphite coating was applied to both sides of the curtain.

As a requirement of BS EN 1634-1, the fabric and curtain are tested as a complete assembly in compliance with BS EN 1363-1 and BS EN 1363-2.

Sampling A representative of Warrington Certification Ltd conducted the sampling and selection of the tested specimen, this was to cover a requirement of EN 16034 the new European Standard.

Reliability, Response Time and Durability tests performed in accordance with BS 8524-1, Warrington Fire Report 406515.

Barrel Fire curtain barrels are manufactured from mild steel tube, tube size dependant on the overall size of the unit and deflection calculated to conform to British Standards.

Operation / Control System The fire curtain barrier shall meet the requirements of BS 8524-1and BS 8524-2 (and is tested to Annex D).

Tested to controlled speeds in all circumstances including gravity, closing to the operational position on total power failure, with the no need for a secondary supply, for regenerative absorption.

When the Barrier is retracted the armature shall be isolated from the supply and the barrier shall be locked in position with the electromagnetic brake. Thus, ensuring the motor armature not damaged and the retracted position is maintained without drift.

The Barrier shall operate with the backup of secure gravity fail safe in accordance with BS 8524-1. The Barrier shall move to the operational position, via controlled descent, when all primary and secondary power is exhausted. In the event of a mains power failure backup power shall be provided by the inbuilt secondary power source, the Barrier shall remain in the retracted position and continue to monitor the alarm and system inputs. If signalled to operate during this period the barrier shall operate as normal.

All Barriers shall have a current limit stall option in the retracted position to negate damage to ceilings and fascias. The secondary supply voltage source is continually monitored. If the voltage becomes critically low the Barrier shall be signalled to close to the operational position (normally between 30 and 120 minutes).

FLAMESHIELD EW 120 "S" FIRE CURTAIN
24 VOLT TUBE MOTOR (1HR, 2HR)

The Barrier shall move to the fire operational position with a velocity within the range of 0.06m/s to 0.15m/s in accordance with BS 8524-1 The Barrier shall require an alarm signal provided by the Electrical Subcontractor. This signal shall be volt free, normally closed (Open on alarm signal). Fire detection / alarm systems shall conform to BS 8524-1 (5.8.4).

Optional Extras

- **Partial Drop** The barrier shall have the facility to deploy to a pre-determined position to allow escape and initial smoke containment. The partial close position shall be site adjustable with a time of up to ten minutes.
- **Emergency Retract** The barrier can have an emergency retract interface for escape and emergency access. The interface shall be volt free, normally open (close on operation). The signal required shall be momentary with a site adjustable retract time. The emergency retract facility shall be operational as long as there is a primary/secondary source or via an external source. (Optional Extra.)
- **Obstruction Warning Devices** Where sensory equipment for detecting obstructions to barrier assembly deployment is provided, e.g. a single or multi-beam detection system, when the barrier assembly is tested in accordance with Annex H, it shall provide a warning in accordance with 5.8.5.2. *NOTE A multi-beam detection system is required when the barrier assembly is intended to protect a means of escape route. For more information, see BS 8524-2.5.8.5.2*

  Warning shall commence between 5 min and 10 min after the obstruction occurs and may be audible, visual or both as appropriate for the application. It shall not be possible to manually reset the alarm while the obstruction is still in place. (Optional extra.)
- **Audio / Visual / Spoken Warning Unit** The barrier has a volt free c/o contact which indicates an active c/o (change over) contact indicating an active alarm signal. An Audio/Visual warning can be interfaced with this using power supplied by secondary source or via an external source. (Optional extra)
- BMS Interface The barrier has volt free c/o contacts to indicate whether the barrier is fully open or fully closed.

FLAMESHIELD Horizontal FIRE CURTAIN 24 VOLT TUBE MOTOR (1HR, 2HR)

APPROVED STANDARDS

BS EN 1634-1
BS EN 1634-3
BS 476: Part 6
BS 476: Part 7
BS EN 12605
BS EN 14600
BS EN 13501-2
BS EN 16034

INTEGRITY
60 minutes 1 Hour integrity
120 minutes 2 Hour integrity

12 metres by 3 metres to a maximum of 32/m²

(PAS 121 is no longer current, it was withdrawn by the British Standards Institute on the 31 July 2013, please see above relevant standards).

HORIZONTAL FIRE CURTAINS

Product Construction All our fire / smoke control curtains are manufactured and produced in accordance with the parameters and technical respects indicated within the specification, which was submitted to the Warrington Fire Research Establishment. The curtains constructed to Warrington Fire Research Centre, the test is in accordance with BS EN 1634-1, AS REQUIRED BY BS 8524 for Fire Integrity and Radiation (Radiation & tenability replaces the insulation zone).

The construction and manufacture is in accordance with Exova Warrington Certificate WF 358994 Manufactured in accordance with sections of the European Standard BS EN 16034.

Basic description The automatic curtains comprise of a mild steel barrel and motor incorporating an attached fabric curtain, the barrel deflection conforms to the necessary British Standard BS 6323-5, the fabric can withstand temperatures in excess of 1000°c the unique Octagonal tubular bottom rail allows smooth operation of the curtain.

The fire barrier shall be powered by an internal 24v DC electric motor that has all the applicable safety standards.

Fabric Fire curtains are formed from a fire rated fabric 0.54mm thick stainless-steel wire reinforced, with a specially formulated aluminum pigmented and fire-retardant polymer which provides a heat reflecting surface as well as other properties for fire.

The fabric has been independently tested for fire propagation in accordance with BS 476-6 in addition to this it also conforms to BS 476-7 which relates to surface spread of flame and in accordance with Approved Document B 2006.

FLAMESHIELD Horizontal FIRE CURTAIN 24 VOLT TUBE MOTOR (1HR, 2HR)

Sampling A representative of Warrington Certification Ltd conducted the sampling and selection of the tested specimen, this was to cover a requirement of EN 16034 the new European Standard.

Barrel fire curtain barrels are manufactured from mild steel tube, tube size dependent on the overall size of the unit and deflection calculated to conform to British Standards.

Operation / Control System The fire curtain barrier shall meet the requirements of BS 8524-I and BS 8524-2 (where appropriate)

When the Barrier is retracted the armature shall be isolated from the supply and the barrier shall be locked in position with the electromagnetic brake. This ensures the motor armature not damaged and the retracted position is maintained without drift.

The Barrier shall move to the operational position. In the event of a mains power failure backup power shall be provided by the inbuilt secondary power source, the Barrier shall remain in the retracted position and continue to monitor the alarm and system inputs. If signaled to operate during this period, the barrier shall operate as normal. The secondary supply voltage source is continually monitored. If the voltage becomes critically low the Barrier shall be signaled to close to the operational position (normally between 30 and 120 minutes). The Barrier shall move to the fire operational position with a velocity within the range of 0.06m/s to 0.15rn/s in accordance with BS 8524-1.

The Barrier shall require an alarm signal provided by the Electrical Subcontractor. This signal shall be volt free. Fire detection / alarm systems shall conform to BS 8524-1 (5.8.4).

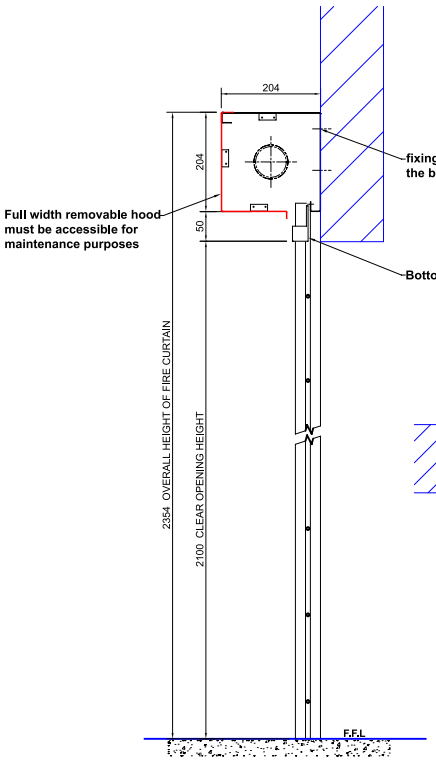
TECHNICAL DATA	
Integrity (E)	120 minutes to at least 1000°C
Radiation (W)	30 minutes – 15KW/m2
Motor	24 Volt DC Electrical Tube Motor
Standard Head Box Section	1.5mm thick Galvanised Steel
Standard Guide Material	2.5mm thick Galvanised Steel
Standard Bottom Tray Material	1.5mm thick Galvanised Steel
Product Performance	To meet the requirements of applicable regulations
Guarantee	12 months from AIS Group Installation

Optional Extras:

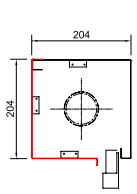
- **Audio/ Visual/ Spoken Warning Unit** The barrier has a volt free c/o contact whichindicates an active c/o (change over) contact which indicates an active alarm signal.An Audio / Visual / Spoken warning unit can be interfaced with this using powersupplied by the primary / secondary source or via an external source.
- **BMS Interface** The barrier has volt free c/o contacts to indicate whether the barrier isfully open or fully closed.

Key:
- Components supplied by A1S Group
- Structure already in situ

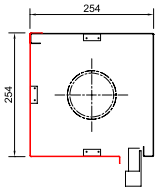
All openings must be capable of carrying the weight of the fire curtain and be equal or greater than the fire resistance of the fire curtain assembly.



ELEVATION

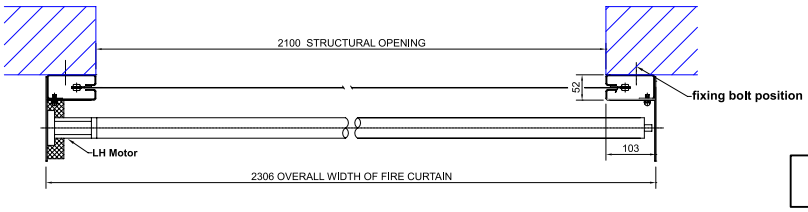


Upto 6 Mtr`s Height



Upto 8 mtr`s Height

STANDARD HOOD / BOX SIZE FOR SINGLE FIRE CURTAINS
Central Support bracket required if the curtain exceeds 6.0mtrs in width



PLAN VIEW

TYPICAL:- 120 MINUTE FACE FIXED FIRE CURTAIN

CD01

Preliminary A1S Group
Fire rating:120 min Integrity
Structure: Masonry
Quantity: 1 No
Handing:Left Hand or Right Hand Motor
Weight: 20 kgs Per Linear Metre Approx
Finish: PPC Ral Colour T.B.C

Inclusions:
- A1S Control Panel
- 24V DC Tube Motor
- Grey Fabric fire curtain
- Polyester Powder Coating

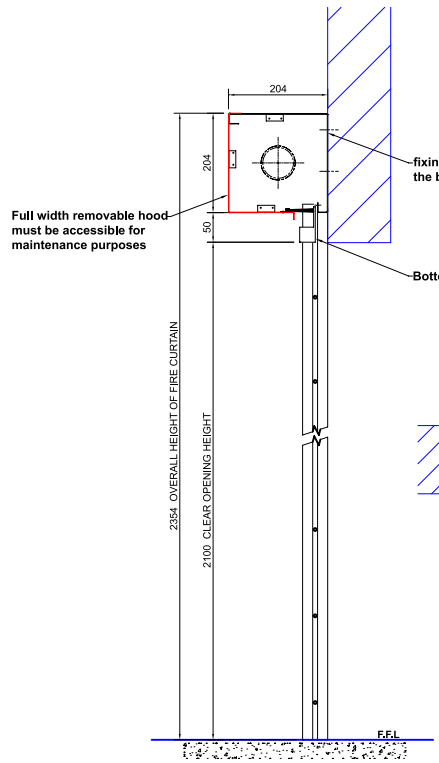
Rev	Description	Date	Description: 120 flameshield Fire Curtain BS: 8524	Drawn By: BT
			Client:	Checked By: DL
			Project:	Date:
			All dimensions in millimetres - DO NOT SCALE	Drawing No:

A1 Shutters Limited
Jackson Works
Raikes Lane Industrial Estate
Bolton BL3 2NH
Telephone 01204 383839

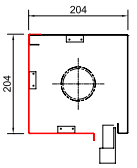
All drawings must not be reproduced or copied without permission from A1S

Key:
- Components supplied by A1S Group
- Structure already in situ

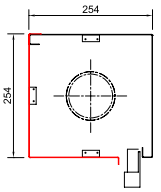
All openings must be capable of carrying the weight of the fire curtain and be equal or greater than the fire resistance of the fire curtain assembly.



ELEVATION

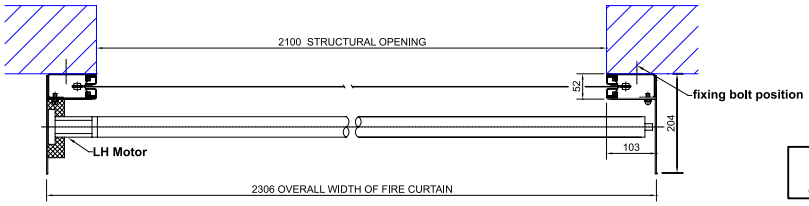


Upto 6 Mtr`s Height



Upto 8 mtr`s Height

STANDARD HOOD / BOX SIZE FOR SINGLE FIRE CURTAINS
Central Support bracket required if the curtain exceeds 6.0mtrs in width



PLAN VIEW

TYPICAL:- 120 MINUTE FACE FIXED FIRE CURTAIN

CD02

Preliminary A1S Group
Fire rating:120 min Integrity
Structure: Masonry
Quantity: 1 No
Handing: Left Hand or Right Hand Motor
Weight: 20 kgs Per Linear Metre Approx
Finish: PPC Ral Colour T.B.C

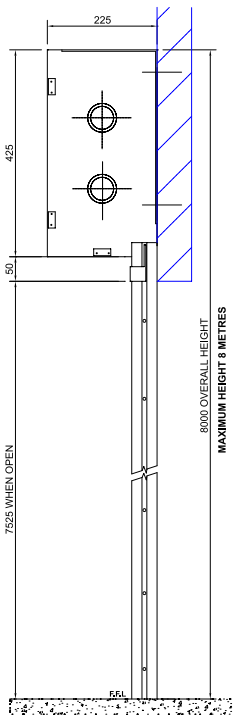
Inclusions:
- A1S Control Panel
- 24V DC Tube Motor
- Grey Fabric fire curtain
- Header & Guide smoke seals
- Polyester Powder Coating

Rev	Description	Date	Description: 120 flameshield Fire Curtain BS: 8524S	Drawn By: BT
			Client:	Checked By: DL
			Project:	Date:
			All dimensions in millimetres - DO NOT SCALE	Drawing No:

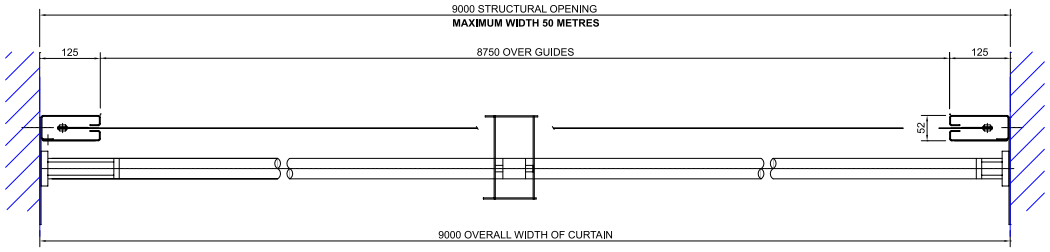
A1 Shutters Limited
Jackson Works
Raikes Lane Industrial Estate
Bolton BL3 2NH
Telephone 01204 383839

Key:
- Components supplied by A1S Group
- Structure already in situ

All openings must be capable of carrying the weight of the fire curtain and be equal or greater than the fire resistance of the fire curtain assembly.



ELEVATION



PLAN VIEW

TYPICAL:- REVEAL FIXED OVERLAPPING FIRE CURTAIN

CD03

Preliminary
A1S Group

Fire rating:120 min Integrity
Structure: Masonry
Quantity: 1 No
Handing: Left / Right Hand Motors
Weight: 20 kgs Per Linear Metre Approx
Finish: PPC Ral Colour T.B.C

Inclusions:
- A1S Control Panel
- 24V DC Tube Motor
- Grey Fabric fire curtain
- Polyester Powder Coating

Rev	Description	Date	Description: Overlapping Flameshield Fire Curtain BS: 8524	Drawn By: BT
			Client:	Checked By: DL
			Project:	Date:
			All dimensions in millimetres - DO NOT SCALE	Drawing No:

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Jackson Works
Raikes Lane Industrial Estate
Bolton BL3 2NH
Telephone 01204 383839

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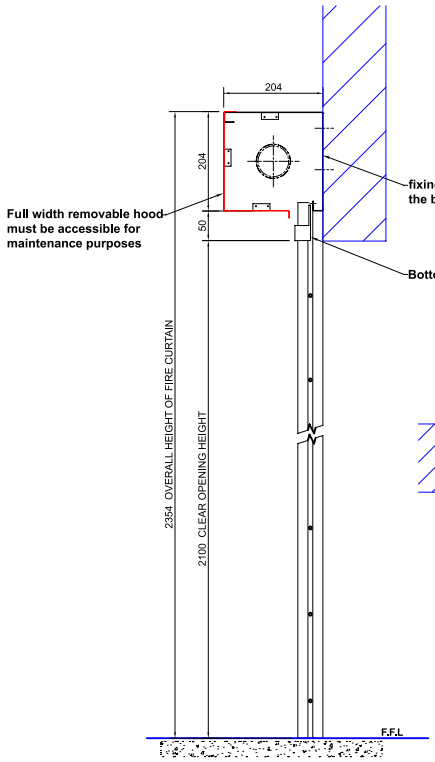
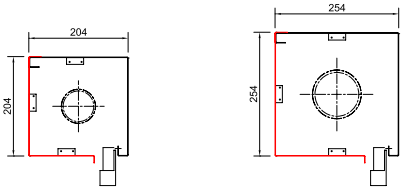
Key:
- Components supplied by A1S Group
- Structure already in situ

All openings must be capable of carrying the weight of the fire curtain and be equal or greater than the fire resistance of the fire curtain assembly.



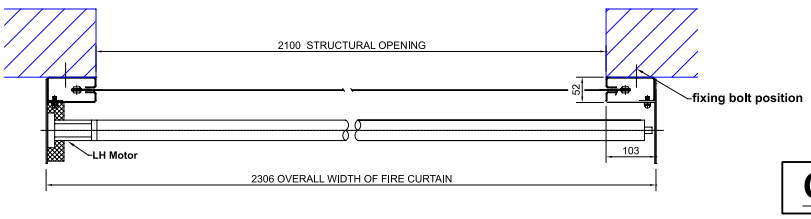
ELEVATION



Upto 6 Mtr`s Height

Upto 8 mtr`s Height

STANDARD HOOD / BOX SIZE FOR SINGLE FIRE CURTAINS
Central Support bracket required if the curtain exceeds 6.0mtrs in width



PLAN VIEW

TYPICAL:-120 MINUTE FACE FIXED FIRE CURTAIN

CD04

Preliminary
A1S Group

Fire rating:120 min Integrity
Structure: Masonry
Quantity: 1 No
Handing: Left Hand or Right Hand Motor
Weight: 20 kgs Per Linear Metre Approx
Finish: PPC Ral Colour T.B.C

Inclusions:
- A1S Control Panel
- 24V DC Tube Motor
- Grey Fabric fire curtain
- Polyester Powder Coating

Rev	Description	Date	Description: 120 Flameshield Fire Curtain BS: 1634	Drawn By: BT
			Client:	Checked By: DL
			Project:	Date:
			All dimensions in millimetres - DO NOT SCALE	Drawing No:

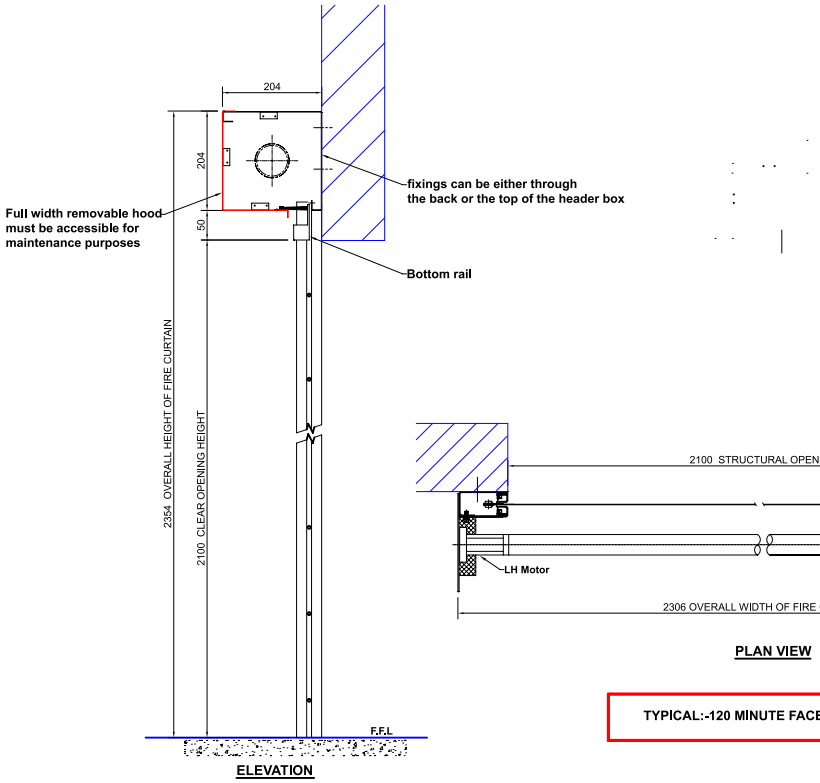
A1 Shutters Limited
Jackson Works
Raikes Lane Industrial Estate
Bolton BL3 2NH
Telephone 01204 383839

Key:

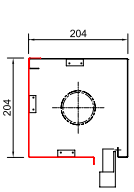
Components supplied by A1S Group

Structure already in situ

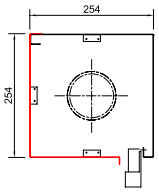
All openings must be capable of carrying the weight of the fire curtain and be equal or greater than the fire resistance of the fire curtain assembly.



ELEVATION



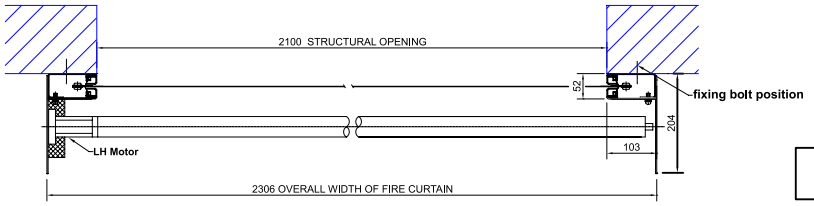
Upto 6 Mtr`s Height



Upto 8 mtr`s Height

STANDARD HOOD / BOX SIZE FOR SINGLE FIRE CURTAINS

Central Support bracket required if the curtain exceeds 6.0mtrs in width



PLAN VIEW

TYPICAL:-120 MINUTE FACE FIXED FIRE CURTAIN

CD05

Preliminary

A1S Group

Fire rating:120 min Integrity
Structure: Masonry
Quantity: 1 No
Handing: Left Hand or Right Hand Motor
Weight: 20 kgs Per Linear Metre Approx
Finish: PPC Ral Colour T.B.C

Inclusions:

- **A1S Control Panel**
- **24V DC Tube Motor**
- **Grey Fabric fire curtain**
- **Header & Guide smoke seals**
- **Polyester Powder Coating**

Rev	Description	Date		
			Description: 120 flameshield Fire Curtain BS: 1634S	Drawn By: BT
			Client:	Checked By: DL
			Project:	Date:
			All dimensions in millimetres - DO NOT SCALE	Drawing No:

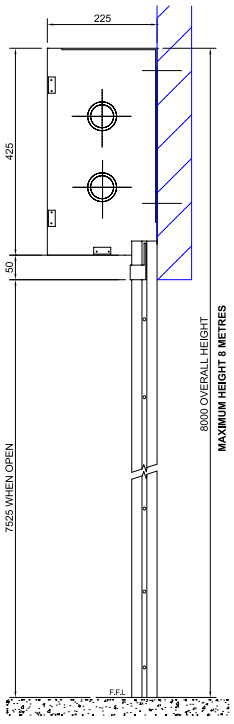
A1 Shutters Limited
Jackson Works
Raikes Lane Industrial Estate
Bolton BL3 2NH
Telephone 01204 383839

Key:

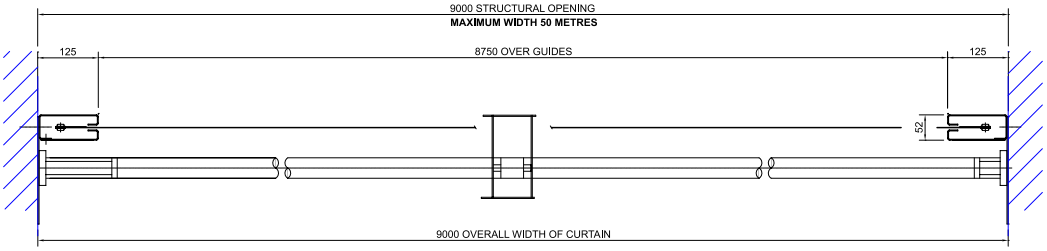
Components supplied by A1S Group

Structure already in situ

All openings must be capable of carrying the weight of the fire curtain and be equal or greater than the fire resistance of the fire curtain assembly.



ELEVATION



PLAN VIEW

TYPICAL:- REVEAL FIXED OVERLAPPING FIRE CURTAIN

CD06

Preliminary

A1S Group

Fire rating:120 min Integrity
Structure: Masonry
Quantity: 1 No
Handing: Left / Right Hand Motors
Weight: 20 kgs Per Linear Metre Approx
Finish: PPC Ral Colour T.B.C

Inclusions:

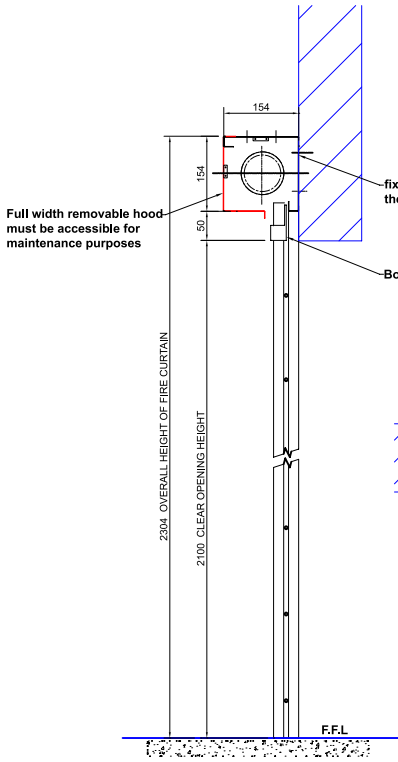
- **A1S Control Panel**
- **24V DC Tube Motor**
- **Grey Fabric fire curtain**
- **Polyester Powder Coating**

Rev	Description	Date		
			Description: Overlapping Flameshield Fire Curtain BS:1634	Drawn By: BT
			Client:	Checked By: DL
			Project:	Date:
			All dimensions in millimetres - DO NOT SCALE	Drawing No:

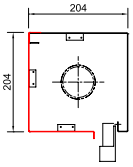
A1 Shutters Limited
Jackson Works
Raikes Lane Industrial Estate
Bolton BL3 2NH
Telephone 01204 383839

Key:
- Components supplied by A1S Group
- Structure already in situ

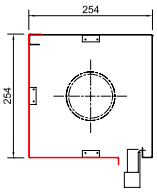
All openings must be capable of carrying the weight of the fire curtain and be equal or greater than the fire resistance of the fire curtain assembly.



ELEVATION

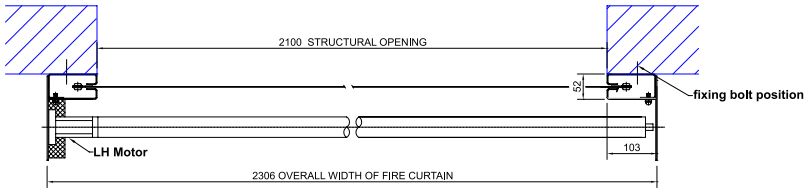


Upto 6 Mtr`s Height



Upto 8 mtr`s Height

STANDARD HOOD / BOX SIZE FOR SINGLE FIRE CURTAINS
Central Support bracket required if the curtain exceeds 6.0mtrs in width



PLAN VIEW

CD07

TYPICAL:- EW120 MINUTE FACE FIXED FIRE CURTAIN

Preliminary
A1S Group
Fire rating:120 min Integrity
Structure: Masonry
Quantity: 1 No
Handing: Left Hand or Right Hand Motor
Weight: 20 kgs Per Linear Metre Approx
Finish: PPC Ral Colour T.B.C

Inclusions:
- A1S Control Panel
- 24V DC Tube Motor
- Grey Fabric fire curtain
- Polyester Powder Coating

Rev	Description	Date	Description: EW120 Flameshield Fire Curtain BS: 1634	Drawn By: BT
			Client:	Checked By: DL
			Project:	Date:
			All dimensions in millimetres - DO NOT SCALE	Drawing No:

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Raikes Lane Industrial Estate
Bolton BL3 2NH
Telephone 01204 383839

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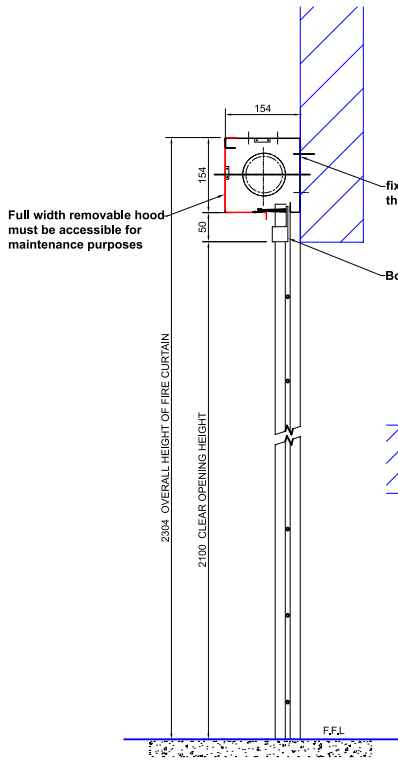
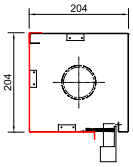
Key:
- Components supplied by A1S Group
- Structure already in situ

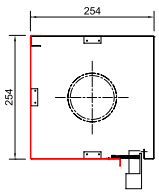
All openings must be capable of carrying the weight of the fire curtain and be equal or greater than the fire resistance of the fire curtain assembly.



ELEVATION

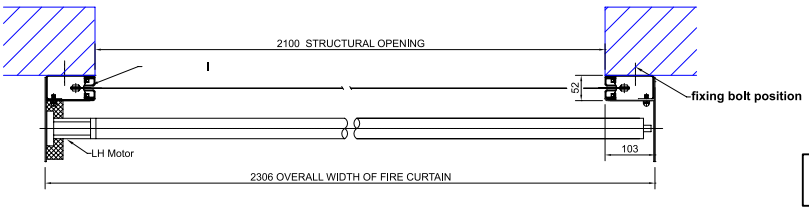


Upto 6 Mtr`s Height



Upto 8 mtr`s Height

STANDARD HOOD / BOX SIZE FOR SINGLE FIRE CURTAINS
Central Support bracket required if the curtain exceeds 6.0mtrs in width



PLAN VIEW

CD08

TYPICAL:- EW120 MINUTE FACE FIXED FIRE CURTAIN WITH SMOKE SEALS

Preliminary
A1S Group
Fire rating:120 min Integrity
Structure: Masonry
Quantity: 1 No
Handing: Left Hand or Right Hand Motor
Weight: 20 kgs Per Linear Metre Approx
Finish: PPC Ral Colour T.B.C

Inclusions:
- A1S Control Panel
- 24V DC Tube Motor
- Grey Fabric fire curtain
- Header & Guide smoke seals
- Polyester Powder Coating

Rev	Description	Date	Description: EW120S Flameshield Fire Curtain BS: 1634S	Drawn By: BT
			Client:	Checked By: DL
			Project:	Date:
			All dimensions in millimetres - DO NOT SCALE	Drawing No:

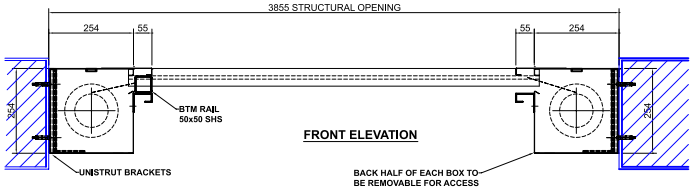
A1 Shutters Limited
Jackson Works
Raikes Lane Industrial Estate
Bolton BL3 2NH
Telephone 01204 383839

Key:

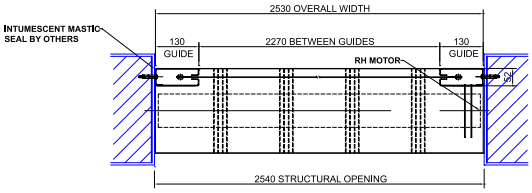
Components supplied by A1S Group

Structure already in situ

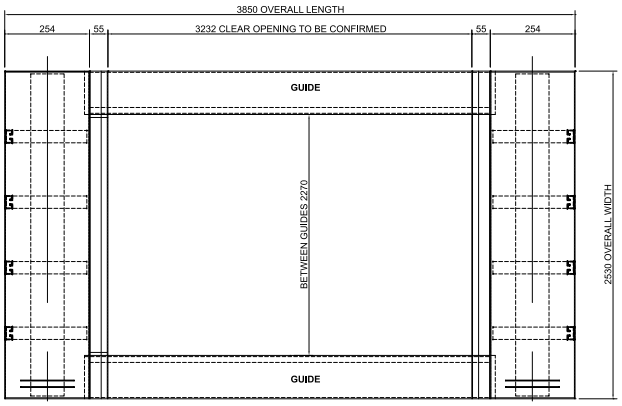
All openings must be capable of carrying the weight of the fire curtain and be equal or greater than the fire resistance of the fire curtain assembly.



FRONT ELEVATION



END ELEVATION



PLAN

NOTE:
INTUMESCENT MASTIC SEAL REQ`D
AROUND THE FIRE CURTAIN BY OTHERS.

NOTE:
STRUCTURAL OPENING`S MUST BE FORMED PERFECTLY SQUARE
IN ORDER FOR FIRE CURTAIN TO FUNCTION CORRECTLY.

120 MINUTE HORIZONTAL FIRE CURTAIN

CD09

Preliminary
A1S Group

Fire rating:120 min Integrity
Structure: T.B.C
Quantity: 1 No
Handing: Right / Left Hand Motors
Weight: 20 kgs Per Linear Metre Approx
Finish: PPC Ral Colour T.B.C

Inclusions:
- A1S Control Panel
- 24V DC Tube Motor
- Grey Fabric fire curtain
- Polyester Powder Coating

Rev	Description	Date		
			Description: Flameshield Horizontal Fire Curtain BS: 1634	Drawn By: BT
			Client:	Checked By: DL
			Project:	Date:
			All dimensions in millimetres - DO NOT SCALE	Drawing No:

A1 Shutters Limited
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Raikes Lane Industrial Estate
Bolton BL3 2NH
Telephone 01204 383839

Access Panels Are A Fundamental Requirement For Fire Curtain Maintenance

ANCILLARY ITEMS, **CONTROL PANEL SPECIFICATIONS** AND **GROUP CONTROLS**

https://firecurtain.co.uk/ Click on specification sheets SS10 to find detailed information on the following range of tested ancillary products. Standard powder coating options are always included for hood box, guides and bottom bars and are not considered ancillary.

A) Egress and Access Switches

1) Emergency Egress Button A1/EE/01 Standard Green Domed Button
2) Emergency Egress Button A1/EE/02 Green Domed Button with brushed steel plate
3) Emergency Egress Button A1/EE/03 Green Domed Button with brushed bronze plate
4) Emergency Egress Button A1/EE/04 Touch Sensitive Illuminated Switch
5) Emergency Access Button A1/EA/05 Standard Orange Domed Button
6) Emergency Access Button A1/EA/06 Orange Domed Button with brushed steel plate

(As a note page 11 Table 4 of BS 8524-2 explains provisioning of egress and access switches)

G) Obstruction Warning Systems (to be used in conjunction with Audio Visual Systems)

1) Single Beam Obstruction Warning A1/OW/01
2) Multi Beam Obstruction Warning A1/OW/02 (Triggers from any 1 single broken beam)

C) Audio/Visual and Voice Warning

1) Audio Visual Panel A1/AV/01
2) Voice Warning A1/VW/01

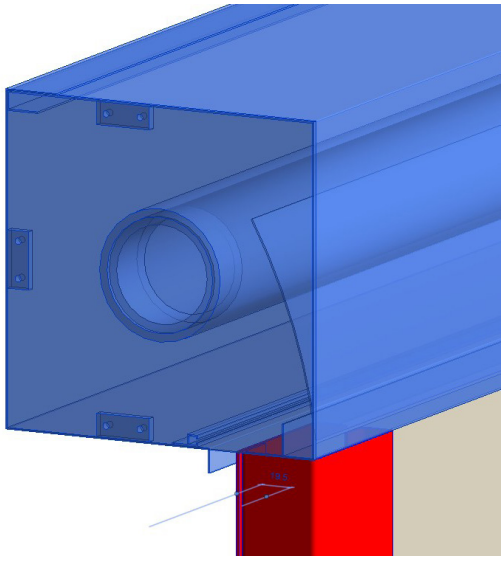
C) Smoke Detector A1/SD/01
D) Heat Detector A1/HD/01

https://firecurtain.co.uk/ Click on specification sheet SS11 for further details on our range of control panels and their functionality.

Links to BIM/REVIT Files

Flameshield fire curtain BIM resources are freely available and can be downloaded from :

https://firecurtain.co.uk/



FIRE CURTAIN SERVICE AND PLANNED **PREVENTATIVE MAINTENANCE** AGREEMENTS

All of our products come with a **12-MONTH** warranty. Extended warranties are available and are quoted on a case by case basis. A1S Group offers affordable service and maintenance agreements for all of our manufactured fire curtain products.

Section 38 of Building Regulations highlights our responsibility to "provide fire safety information to the responsible person at the completion of a project." Our operational and maintenance manuals are comprehensive, and we offer product training for the end user. As an end client, you will have legally binding servicing and maintenance responsibilities. Further details are available at:

https://a1sgroup.com/service-repair

Fire Shutter Applications

The Flameshield range of fire shutters is synonymous with build quality, aesthetically pleasing design and combines security with a fire resistance of up to E240.

(See specification sheets below). All Flameshield fire shutter products come with powder coating options to standard and non-standard RAL colours. We have manufactured, supplied and installed tens of thousands of fire shutters, with the most standard applications being kitchen serveries, and industrial settings, such as manufacturing plants and production lines where a high number of machines pose a potential fire risk. Fire shutters do not offer smoke control because of smoke ingress between lath sections. Where security AND fire and smoke control is required, we will often install a non-fire rated roller shutter AND a fire and smoke curtain. We also manufacture a range of radiant heat reducing fire shutters which have a separate product brochure.

A1S GROUP **FIRE SHUTTER** PROJECT **PORTFOLIO**

Our portfolio of fire shutter projects stretches across all construction sectors. We have supplied and installed fire shutters to stadia, (including London's Olympic Stadium, and in progress stadia for the 2022 World Cup finals in Qatar), commercial offices (both fit out and new build), hospitals and extra care, residential, places of worship, manufacturing and industrial, retail and shopping malls, international airports and global travel hubs, restaurants and hotels, schools and universities, museums and galleries and government and military.

The following 4 projects exhibit some of our decade's long experience of fire shutter works.

Al Bayt World Cup Finals Stadium **Qatar**

Building on A1S Group Flameshield products being installed in the iconic Tottenham Hotspur Stadium (we were ahead of schedule), Wembley Stadium, Twickenham, Manchester's Etihad, and the London Olympic Stadium, the A1S Group secured the fire and industrial shutter package for the World Cup 2022 semi-final hosting Al Bayt Stadium.

Working alongside longstanding Middle Eastern partners Al Thuraya, the package consists of manufacturing 52 Flameshield FS240JM Industrial Fire Shutters and 6 Industrial Roller Shutters. Mark Dougill, A1S Group export manager said, "It was our ability to manufacture fully compliant and accredited shutters up to 9.2 metres wide coupled with our project experience with Al Thuraya on the Doha Metro where we manufactured in excess of 100 insulated roller shutters that secured the package. Al Thuraya and the Qatari Aspire organisation were impressed with our heritage of manufacturing and installing in some of the world's most iconic stadiums."

Oman Conference and Exhibition Centre

The Oman Convention and Exhibition Centre is a major business and tourism facility owned and developed by the Oman Tourism Development Company and located in the Seeb area of Capital city Muscat.

17 Flameshield FS240JM fire shutters with JM Series Motors provide 2 to 4 hour protection for this regional commercial hub and iconic conference facility.

University of **Cambridge Estates**

The A1S Group has successfully completed a number of fire rated shutter projects for the University of Cambridge

and has recently secured a major contract to manufacture a significant industrial Flameshield fire shutter package for the third phase of the university's world-famous Cavendish Laboratory named after Henry Cavendish – the discoverer of hydrogen.

Crossrail **London**

Working for UK Tier 1 Contractors, Bam, Ferrovial Kier (BFK), Flameshield Fire Shutters were installed with 1 phase industrial JM motors, complete with hauls chains, integral safety cut off limits and auto solenoid release.

Comprehensive materials listings, mill certificates, supply chain REACH evaluations and an upgraded Inspection Test Plan (ITP) were required to comply with site and project requirements.

A1S GROUP **FIRE SHUTTER TESTING** AND **COMPLIANCE**

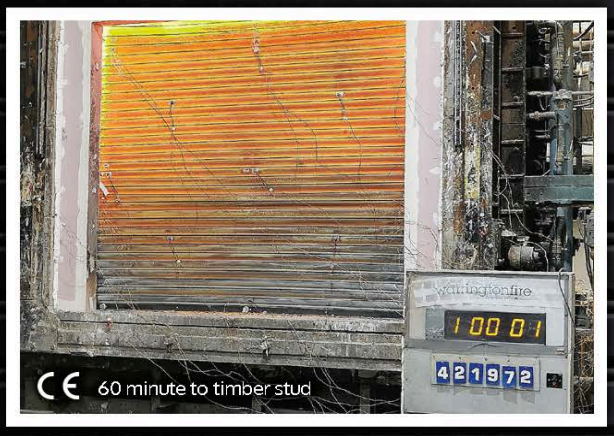
UK and European Standards Overview

The A1S Group regularly sends out marketing materials and blogs on product and compliance-based issues in so far as they affect our activities as a manufacturer and present our trade customers with commercial opportunities. To receive A1S Group company news, email info@a1shutters.co.uk.

The following mailshot example neatly summarizes the pivotal compliance and legislative fire shutter changes following the mandatory implementation of BS EN16034 for fire shutters in November 2019. As a company we welcomed these critical changes with their focus on physical testing rather than assessments and desk top appraisals. Fundamentally, they will lead to a safer built environment. We also know that as of May 2020, we are the ONLY UK manufacturer that is fully compliant with these changes, and uniquely hold an Extended Application to BS EN 15269-10:2011 (Warrington Fire Certificate 422881) and the mandatory Certificate of Constancy (see below) enabling us to CE mark fire shutters for end use either "rigid structures" (i.e. steel/ masonry) and "flexible structures" (i.e. timber stud). Any other test evidence or assessments are now redundant.

We cannot sing the following any louder from the roof tops. The new standards have been brought in to save lives and protect buildings, and it is ILLEGAL to manufacture, procure, install or use fire shutters that are not CE marked or legitimately CE marked against BSEN 16034. (i.e. installing a product tested on a rigid structure only, into a flexible structure.)

Can your existing supplier legitimately CE Mark fire shutters to both masonry/ steel AND timber stud structures?



Shutters Cannot Be Supplied by Manufacturers, Procured by Contractors, or Used in the Workplace by Employers & Landlords without a legitimate CE Mark.

Because of the testing costs to fully achieve EN BS 16034 and the potential penalties for supplying fire shutters that cannot be legitimately CE Marked, a significant quantity of manufacturers are now choosing to "buy in" rather than manufacture.

The complexity of CE Marking to both BS EN 16034:2014 and BS EN 13241-1:2003 has been further complicated by the requirement for separate BS 1634-1 fire tests to achieve BS EN 16034 for BOTH rigid 4 hour (masonry/ concrete/steel) and flexible structures 1 hour (timber stud).

Without the correct testing documentation and a relevant Extended Application to BS EN 15269-10 2011 to include both rigid and flexible structures where required, the products cannot be correctly CE Marked.

There are extremely serious consequences for manufacturers, buyers/installers and employers/landlords if the products are not legitimately CE Marked. The A1S Group has passed all relevant fire shutter tests including separate fire tests to both flexible and rigid structures, WF 421375/WF421972.

The A1S Group holds Extended Application WF 422881 which not only allows for the UK's widest range of fire shutter parameters, it also allows our shutters to be fitted to timber stud.

For a discussion in confidence, or to arrange a fully compliant quotation for the UK market place, please contact **richard@a1shutters.co.uk** or **paul@a1shutters.co.uk**

A1 Shutters Limited t/a A1S Group
Raikes Lane Industrial Estate, Bolton, BL32NH.
www.a1sgroup.com | 01204 383839

Further information on the legislative changes for fire shutters introduced throughout the UK, Europe and increasingly specified globally can be found at **https://a1sgroup.com/blog/fire-shutter**

Notified body No. 1121

Certificate of Constancy of Performance

1121-CPR-RA5009

In compliance with *Regulation 305/2011/EU of the European Parliament and of the Council of 9 March 2011* (the Construction Products Regulation or CPR), this certificate applies to the construction product

Flameshield Roller Shutter

Product: **Fire resisting roller shutter covered by EN 13241-1**

Intended use: **Fire compartmentation and/or escape routes**

Essential characteristics	Performance	Harmonised technical specification
Resistance to Fire	E60 / E120 / E240	EN 16034: 2014
Smoke control (only for applications where limitation of smoke spread is required)	NPD	
Ability to release	released	
Self Closing (only for self closing fire resistance and/or smoke control doorsets and/or openable windows)	C	
Durability of ability to release	NPD	
Durability of self-closing	NPD	

warringtonfire
Proud to be part of element

Certificate of Constancy of Performance

1121-CPR-RA5009

Produced for

A1 Shutters Limited
Jackson Works
Raikes Lane Industrial Estate
Bolton
BL3 2NH
and produced in the manufacturing plant

E/346

This is coded format and the information is held by the Notified Body

This certificate attests that all provisions concerning the assessment and verification of constancy of performance and the performances described in Annex ZA of the standard(s)

EN 16034: 2014

under system 1 *of AVCP* are applied and that

the product fulfils all the prescribed requirements set out above.

This certificate was first issued on **04/03/2020** and will remain valid to the date given below as long as the test methods and/or factory production control requirements included in the harmonised standard, used to assess the performance of the declared characteristics, do not change, and the product, and the manufacturing conditions in the plant are not modified significantly.

Valid to: **03/03/2023**

Paul Duggan
Certification Manager

CE

Warringtonfire Testing and Certification Limited
Holmesfield Road, Warrington, Cheshire, WA1 2DS, UK

A1S GROUP **FIRE SHUTTER SPECIFICATION** AND **DRAWINGS**

PRODUCT NAME	BRITISH AND EUROPEAN STANDARDS	INTEGRITY	STRUCTURE	MAX WIDTH*	MAX HEIGHT*	CONTROLS	SPEC SHEET	PDF DRAWING	CAD FILE	BIM RESOURCE
Flameshield FS60T	The Flameshield Fire Shutter range benefits from the following accreditations and certifications. BSEN 1634-1, BSEN 16034:2014, EXAP to BS 15269-10 and a Certificate of Constancy of Performance	60 Mins	Timber	5000	3800*	Relay or Audio Visual, Key Switch, Battery Back UP(BBU	SS13	CD13	**Link**	**Link**
Flameshield FS240T		60-240 Mins	Masonry Steel	5000	3800*		SS14	CD14	**Link**	**Link**
Flameshield FS60JM		60 Mins	Timber	5000	3800*	Audio Visual, Fusible Link, Manual Reset Solenoid and Auto reset solenoid	SS15	CD15	**Link**	**Link**
Flameshield FS240JM		60-240 Mins	Masonry Steel	9000	9000*		SS16	CD16	**Link**	**Link**
Ancillary Items	EN BS 1634/BS 8524						SS17/SS18	**Link**	**Link**	**Link**

*Max Width and Max Height can not be aggregated i.e. FS60 T 5000mm wide x 3000mm high and 2000mm wide by 3800mm high is permissible BUT NOT 5000mm x 3800mm.
All parameters should always be confirmed with the A1S Group and all permissible parameters are always determined by our Extended Application. For further details see individual product matrices. Parameters are also affected by required fire performance i.e. 1-4 hours and have varying barrel and component sizes.

SPECIFICATION SPEC SHEET-SS13
A1S/FLAMESHIELD FS 60T

FLAMESHIELD FIRE ROLLING SHUTTER "TUBE MOTOR" 1 HOUR FOR END USE TIMBER OR FLEXIBLE STRUCTURE

This product is CE Marked. Without a CE Mark Fire Shutters are illegal.

All A1S Group fire shutters are manufactured and produced in accordance with the parameters and technical respects indicated within specifications, which were submitted to the Warrington Fire Research Establishment. The shutters are constructed to Fire Testing in accordance with BSEN 1634-1 and full compliance with the new Fire Standard BSEN 16034:2014. **This product can be fitted to EITHER a flexible or rigid structure and is CE marked.**

Element Fire Research Centre No 421972 Timber / Flexible Structure test. **This fire test is a legal requirement.**
Extended Application under WF 422881 **This EXAP is a legal requirement.**
Certificate of Constancy of Performance - 1121-CPR-RA5009 **This certificate is a legal requirement.**

Curtains are constructed from 76mm curved steel scroll laths interlocked with steel end locks and galvanised "T" section bottom rail.

The barrel is manufactured from mild steel tube, tube size varies based on the overall width and height of the curtain and the gauge of laths. The tube wall thickness varies according to the width of the shutter. The barrels are mounted on bright steel shafts varyingly sized dependant on the overall size of the shutter. The shafts have mild steel bearing blocks at non geared end and tubular motor at the geared end.

Endplates: The endplates are fixed to a steel fixing angle which spans the full height of the shutter, which in turn is fixed back to the wall construction. Accordingly, the angles are slotted for expansion with an anchor point located at the bottom of the angle.

Guides vary from 50mm straight channel galvanised guide mounted on 75mm x 50mm mild steel angle(minimum). For shutters of increased width compared to tested sizes we provide for expansion and the depth of each guide rail shall be increased dependent on the shutter width.

Hood: Formed from 20swg steel sheet, with the top leg slotted for expansion. Dependant on the fire rating of the shutter (1Hour Only) and the size of the opening.

Finishes The curtain and guides are galvanized, angles, barrel and end plates are painted.
A paint finish using a polyester powder coating system is available, the colour to a BS 4800 or RAL number subject to availability.

FLAMESHIELD FIRE ROLLING SHUTTER "TUBE MOTOR" 1 HOUR FOR END USE TIMBER OR FLEXIBLE STRUCTURE

Operation - Electrically operated 1PH Tubular Motor

Release Mechanisms - Fire relay linked to the Fire Alarm to allow closure from a fire alarm signal comes complete with a battery backup (Mandatory) . The fire relay and battery backup are tested as part of the Ability to Release and Durability tests.

Alternatively, Audio Visuals are available, again to be linked to the fire alarm, this unit offers the facility of a time delay, this flashes and sounds to warn that the fire shutter is closing.

SIZE PARAMETERS – TIMBER STUD PARTITION

The shutter test relates to 1HR fire resistance.

Effectively the shutters are generally intended for protection of a range of openings in timber partitions.

The maximum clear openings are for 5000mm wide x 3000mm high or in a partition system for 1 hour in accordance with Warrington Fire Research Centre WARRES No 421972, (the fire test is in accordance with BS EN 1634-1;) 2018 and the extended application process carried out in conformity with BS EN 15269-10 :2011. Where the fire shutter is fixed to a stud partition, the opening must be fire rated to suit and be capable of carrying the weight of the shutter.

Where the shutters are used to protect serveries it is assumed that the counter is composed of noncombustible material and the counter is of sufficient width to ensure that the bottom rail movement under heating cannot result in the rail overhanging the counter.

Extended sizes are available if this product is fixed to a rigid structure.

SHUTTER SIZES AND REQUIRED PERFORMANCE MUST BE CONFIRMED AGAINST OUR LATEST EXTENDED APPLICATION

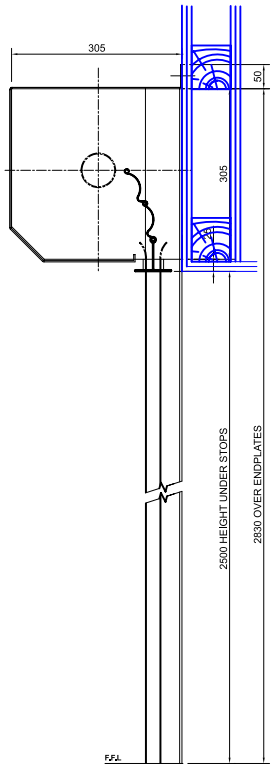
Indicative drawings below, "reveal fix and face fix" relate to this specification SS13 and are illustrative only. Project specific drawings are available upon request.

CD 13

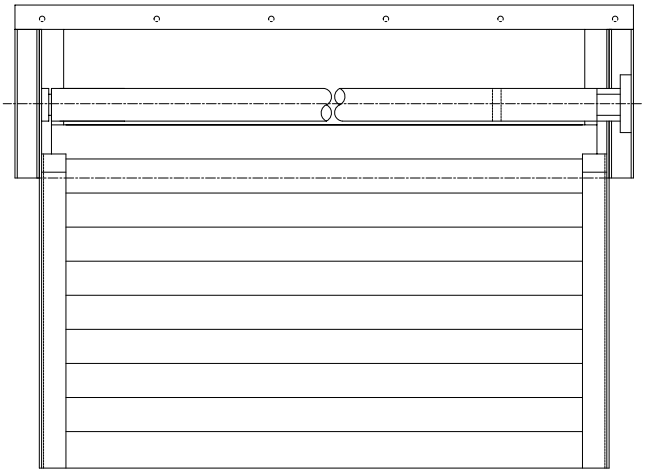
NOTE *
Indicative drawing only
Box size could change due to height & Width

Key:
Components supplied by A1S Group
Structure already in situ

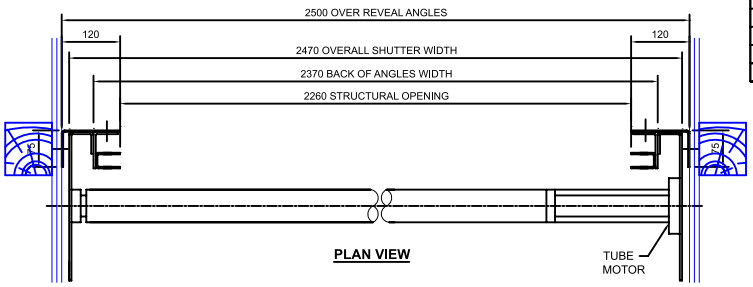
All openings must be capable of carrying the weight of the fire Shutter and be equal or greater than the fire resistance of the fire shutter assembly.



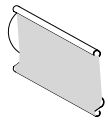
ELEVATION



FRONT VIEW



PLAN VIEW



ENLARGED LATH DETAIL

GUIDE FIXING ANGLE 75mm x 50mm x 5mm
GUIDES - 50 CHANNEL
BOTTOM RAIL DOUBLE FORMED

HARDWARE REQUIRED	
LATH - 76mm SOLID GALV	YES
NORMAL COIL	YES
KEYSWITCH	YES
EASY FIT RELAY	YES
HOOD	YES
BATTERY BACK-UP UNIT C/W BRKT	YES
SAFETY BEARING	YES
MANUAL OVERRIDE	YES

Preliminary
A1S Group

Fire rating: 60 Min
Structure: Timber, Fire Rated Plasterboard
Quantity: 1 No
Handing: Left Hand or Right Hand Motor
Weight: 36 kgs Per Sq Metre Approx
Finish: PPC Ral Colour T.B.C

SPEC SHEET SS

Rev	Description	Date	Description: Flameshield FS60T Fire Shutter Reveal Fix	Drawn By: BT
			Client:	Checked By: DL
			Project:	Date:
			All dimensions in millimetres - DO NOT SCALE	Drawing No:

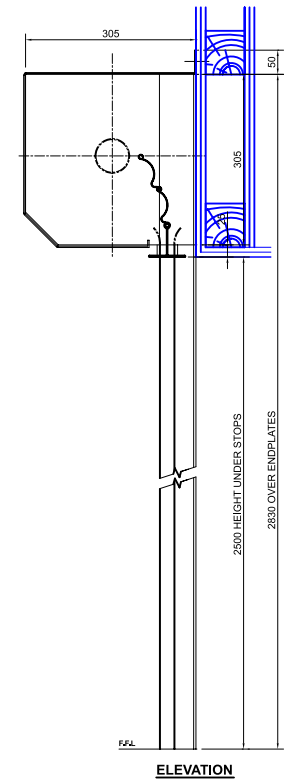
A1 Shutters Limited
Jackson Works
Raikes Lane Industrial Estate
Bolton BL3 2NH
Telephone 01204 383839

All drawings must not be reproduced or copied without permission from A1S

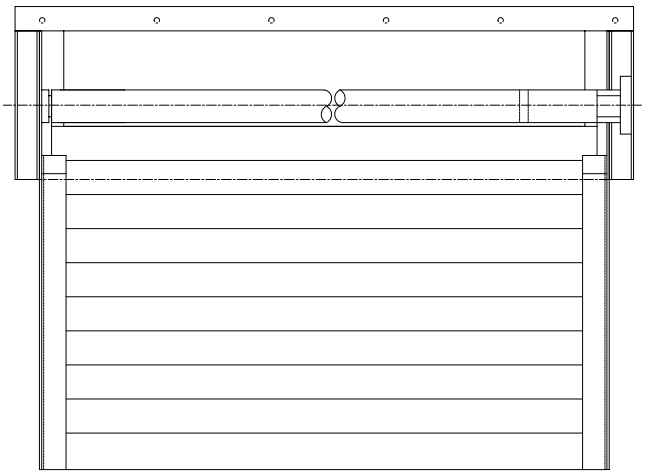
NOTE *
Indicative drawing only
Box size could change due to height & Width

Key:
Components supplied by A1S Group
Structure already in situ

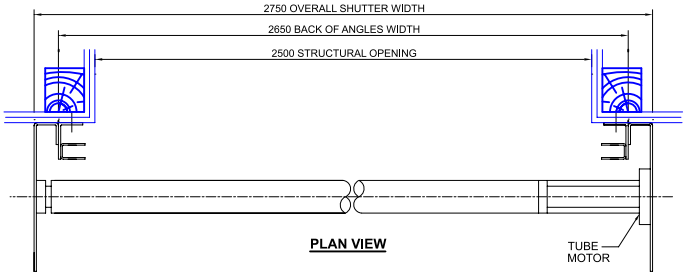
All openings must be capable of carrying the weight of the fire Shutter and be equal or greater than the fire resistance of the fire shutter assembly.



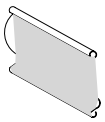
ELEVATION



FRONT VIEW



PLAN VIEW



ENLARGED LATH DETAIL

GUIDE FIXING ANGLE 75mm x 50mm x 5mm
GUIDES - 50 CHANNEL
BOTTOM RAIL DOUBLE FORMED

HARDWARE REQUIRED:	
LATH - 76mm SOLID GALV	YES
NORMAL COIL	YES
KEYSWITCH	YES
EASY FIT RELAY	YES
HOOD	YES
BATTERY BACK-UP UNIT C/W BRKT	YES
SAFETY BEARING	YES
MANUAL OVERRIDE	YES

Preliminary
A1S Group

Fire rating: 60 Min
Structure: Timber, Fire Rated Plasterboard
Quantity: 1 No
Handing: Left Hand or Right Hand Motor
Weight: 36 kgs Per Sq Metre Approx
Finish: PPC Ral Colour T.B.C

Rev	Description	Date	Description: Flameshield FS60T Fire Shutter Face Fix	Drawn By: BT
			Client:	Checked By: DL
			Project:	Date:
			All dimensions in millimetres - DO NOT SCALE	Drawing No:

A1 Shutters Limited
Jackson Works
Raikes Lane Industrial Estate
Bolton BL3 2NH
Telephone 01204 383839

SPECIFICATION SPEC SHEET-SS14
A1S/FLAMESHIELD FS240T

FLAMESHIELD FIRE ROLLING SHUTTER "TUBE MOTOR" 2-4 HOUR FOR END USE MASONRY OR RIGID STRUCTURE

This product is CE Marked. Without a CE Mark Fire Shutters are illegal.

All A1S Group fire shutters are manufactured and produced in accordance with the parameters and technical respects indicated within the specification, which was submitted to the Warrington Fire Research Establishment. The shutters are constructed to :
Fire Testing in accordance with BSEN 1634-1 and full compliance with the new Fire Standard BSEN 16034:2014. **This product can be fitted to only a rigid structure and is CE marked.**

Element Fire Research Centre No 421972 Timber / Flexible Structure test. This is a legal requirement.
Extended Application under BS EN15269-10 2011 WF 421375 This is a legal requirement.
Certificate of Constancy of Performance - 1121-CPR-RA5009 This is a legal requirement.

Curtains constructed from 50 mm Flat / 76mm curved steel scroll laths interlocked with steel end locks and galvanised T section bottom rail.

Barrel manufactured from mild steel tube, tube size varies based on the overall width and height of the curtain and the gauge of laths. The tube wall thickness varies dependant on the width of the shutter, the barrels are mounted on bright steel shafts varying from 18mm to 30mm dependant on the overall size of the shutter, the shafts have mild steel bearing blocks at non geared end and tubular motor at the geared end.

Endplates: The endplates are fixed to a steel fixing angle which spans the full height of the shutter, which in turn is fixed back to the wall construction. Accordingly, the angles are slotted for expansion with an anchor point located at the bottom of the angle.

Guides vary from 50mm straight channel galvanised guide mounted on 75mm x 50mm mild steel angle(minimum). For shutters of increased width compared to tested sizes we provide for expansion and the depth of each guide rail shall be increased dependent on the shutter width.

Hood: Formed from 20swg steel sheet, with the top leg slotted for expansion. Dependant on the fire rating of the shutter (1Hour Only) and the size of the opening.

Finishes The curtain and guides are galvanized, angles, barrel and end plates are painted.
A paint finish using a polyester powder coating system is available, the colour to a BS 4800 or RAL number subject to availability.

Operation -Electrically operated 1PH Tubular Motor
Release Mechanisms - Relay,Audio Visual ,Key Switch, Battery Back Up

FLAMESHIELD FIRE ROLLING SHUTTER "TUBE MOTOR" 2-4 HOUR FOR END USE MASONRY OR RIGID STRUCTURE

Fire relay linked to the Fire Alarm to allow closure from a fire alarm signal comes complete with a battery backup (Mandatory) . The fire relay and battery backup are tested as part of the Ability to Release and Durability tests.

Alternatively, Audio Visuals are available, again to be linked to the fire alarm, this unit offers the facility of a time delay, this flashes and sounds to warn that the fire shutter is closing.

SIZE PARAMETERS – Masonry/Steel

The shutter test relates to 2-4 hour fire resistance.

Effectively the shutters are generally intended for protection of a range of openings in rigid i.e. masonry or steel structures.

The maximum clear openings are for 5000mm wide x 5000mm high or in a partition system for 4 hours in accordance with Warrington Fire Research Centre WARRES No 421375 (the fire test is in accordance with BS EN 1634-1;) 2018 and the extended application process carried out in conformity with BS EN 15269-10 :2011. Where the fire shutter in a stud partition, the opening must be fire rated to suit and be capable of carrying the weight of the shutter.

Increased parameters are available if one or two hour performance is required.

Where the shutters are used to protect serveries it is assumed that the counter is composed of non-combustible material and the counter is of sufficient width to ensure that the bottom rail movement under heating cannot result in the rail overhanging the counter.

It is illegal to install ire shutters in the UK and Europe without a CE Mark

SHUTTER SIZES AND REQUIRED PERFORMANCE MUST BE CONFIRMED AGAINST OUR LATEST EXTENDED APPLICATION.

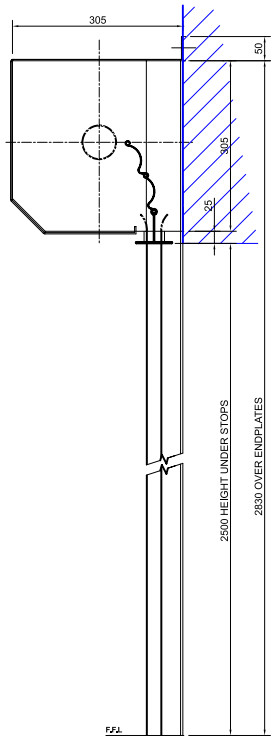
Indicative drawings below, "reveal fix and face fix" relate to this specification SS14 and are illustrative only. Project specific drawings are available upon request.

CD 14

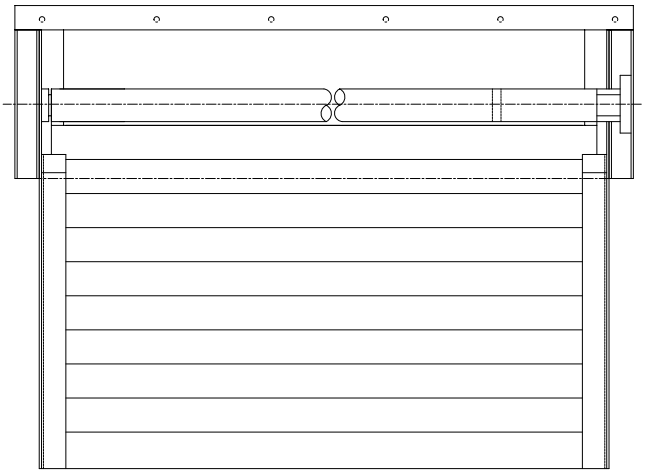
NOTE *
Indicative drawing only
Box size could change due to height & Width

Key:
Components supplied by A1S Group
Structure already in situ

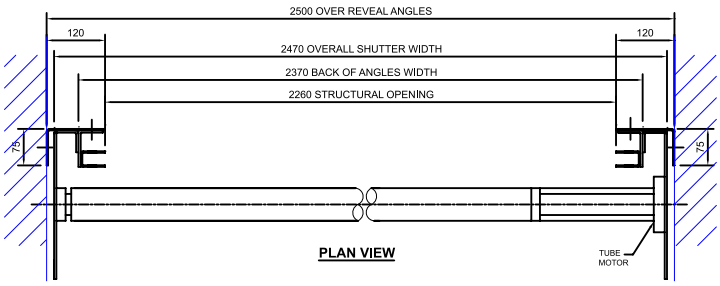
All openings must be capable of carrying the weight of the fire Shutter and be equal or greater than the fire resistance of the fire shutter assembly.



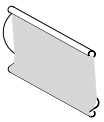
ELEVATION



FRONT VIEW



PLAN VIEW



ENLARGED LATH DETAIL

GUIDE FIXING ANGLE 75mm x 50mm x 5mm
GUIDES - 50 CHANNEL
BOTTOM RAIL DOUBLE FORMED

HARDWARE REQUIRED	
LATH - 76mm SOLID GALV	YES
NORMAL COIL	YES
KEYSWITCH	YES
EASY FIT RELAY	YES
HOOD	YES
BATTERY BACK-UP UNIT C/W BRKT	YES
SAFETY BEARING	YES
MANUAL OVERRIDE	YES

Preliminary
A1S Group

Fire rating: 60/120/240 Min
Structure: Steel, Masonry
Quantity: 1 No
Handing: Left Hand or Right Hand Motor
Weight: 36 kgs Per Sq Metre Approx
Finish: PPC Ral Colour T.B.C

Rev	Description	Date	Description: Flameshield FS240T Fire Shutter Reveal Fix	Drawn By: BT
			Client:	Checked By: DL
			Project:	Date:
			All dimensions in millimetres - DO NOT SCALE	Drawing No:

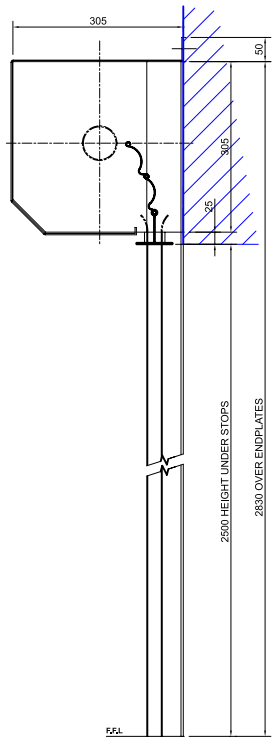
A1 Shutters Limited
Jackson Works
Raikes Lane Industrial Estate
Bolton BL3 2NH
Telephone 01204 383839

All drawings must not be reproduced or copied without permission from A1S

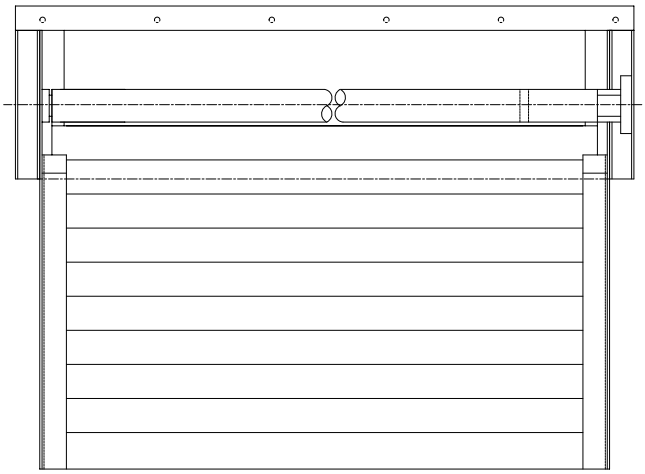
NOTE *
Indicative drawing only
Box size could change due to height & Width

Key:
Components supplied by A1S Group
Structure already in situ

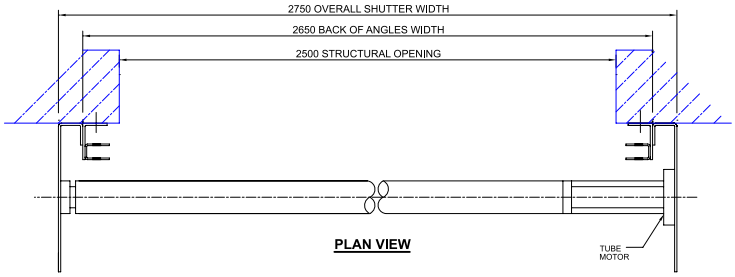
All openings must be capable of carrying the weight of the fire Shutter and be equal or greater than the fire resistance of the fire shutter assembly.



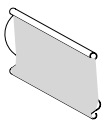
ELEVATION



FRONT VIEW



PLAN VIEW



ENLARGED LATH DETAIL

GUIDE FIXING ANGLE 75mm x 50mm x 5mm
GUIDES - 50 CHANNEL
BOTTOM RAIL DOUBLE FORMED

HARDWARE REQUIRED:	
LATH - 76mm SOLID GALV	YES
NORMAL COIL	YES
KEYSWITCH	YES
EASY FIT RELAY	YES
HOOD	YES
BATTERY BACK-UP UNIT C/W BRKT	YES
SAFETY BEARING	YES
MANUAL OVERRIDE	YES

Preliminary
A1S Group

Fire rating: 60/120/240 Min
Structure: Masonry, Steel
Quantity: 1 No
Handing: Left Hand or Right Hand Motor
Weight: 36 kgs Per Sq Metre Approx
Finish: PPC Ral Colour T.B.C

Rev	Description	Date	Description: Flameshield FS240T Fire Shutter Face Fix	Drawn By: BT
			Client:	Checked By: DL
			Project:	Date:
			All dimensions in millimetres - DO NOT SCALE	Drawing No:

A1 Shutters Limited
Jackson Works
Raikes Lane Industrial Estate
Bolton BL3 2NH
Telephone 01204 383839

FIRE ROLLING SHUTTERS "INDUSTRIAL MOTOR" (1HR TIMBER/FLEXIBLE STRUCTURE)

These shutters are CE Marked, which is a legal requirement.

All our fire shutters are manufactured and produced in accordance with the parameters and technical respects indicated within the specification, which was submitted to the Warrington Fire Research Establishment. The shutters are constructed to:
Fire Testing in accordance with BSEN 1634-1 and full compliance with the new Fire Standard BSEN 16034:2014.

Element Fire Research Centre No 421972 Timber / Flexible Structure test.
Extended Application under BS EN15269-10 2011 WF 422881
Certificate of Constancy of Performance - 1121-CPR-RA5009

Curtains are constructed from 76mm curved steel scroll laths interlocked with steel end locks and galvanised T- section bottom rail.

Barrel manufactured from mild steel tube, tube size varies based on the overall width and height of the curtain and the gauge of laths. The tube wall thickness varies dependent on the width of the shutter, the barrels are mounted on bright steel shafts varying from 18mm to 30mm dependent on the overall size of the shutter, the shafts have mild steel bearing blocks at non geared end and industrial motor at the geared end.

Endplates: The endplates are fixed to a steel fixing angle which spans the full height of the shutter, which in turn is fixed back to the wall construction. A minimum of 2 off fixings are required, the fixing shall be along the full height of the fixing angle plus one additional fixing adjacent to the end plate spaced equidistantly along the height of the end plate.

Guides constructed from minimum 50mm straight channel galvanised guide mounted on 75mm x 50mm mild steel angle(minimum). For shutters of increased width compared with the tested to provide for expansion the depth of each guide rail shall be increased by 5mm for every 1m increase in width.

Hood formed from 20swg steel sheet, with the top leg slotted for expansion. Dependant on the fire rating of the shutter (1Hour Only) and the size of the opening (Hood support brackets are no longer able to be used to reduce the barrel diameter). The EXAP provide for use of a canopy (Specific appropriate restrictions apply).

The curtain and guides finishes are galvanised, whilst angles, barrel and end plates are painted. A paint finish using a polyester powder coating system is available, the colour to a BS 4800 or RAL number subject to availability.

SPECIFICATION SPEC SHEET-SS15
A1S/FLAMESHIELD FS 60JM

FIRE ROLLING SHUTTERS "INDUSTRIAL MOTOR" (1HR TIMBER/FLEXIBLE STRUCTURE)

Operation -Electrically operated 1PH / 3PH – Hand chain Override

Release Mechanisms -Fusible Link/Manual reset solenoid/Auto reset Solenoid
Alternatively, Audio Visuals are available, again to be linked to the fire alarm, this unit offers the facility of a time delay, which flashes and sounds to warn that the fire shutter is closing.

SIZE PARAMETERS – TIMBER STUD PARTITION

The shutter test relates to 1HR fire resistance.

The shutters are generally intended for protection of a range of openings in timber partitions. At present the maximum clear openings are for 5000mm wide x 3000mm high or in a partition system for 1 hour based on Warrington Fire Research Centre WARRES No 421972. The test is in accordance with BS EN 1634-1; 2018, BS EN 16034:2014 and the extended application process carried out in conformity with BS EN 15269-10 :2011. Confirmed dimensions are derived from our EXAP and the opening must be fire rated to suit and be capable of carrying the weight of the shutter.

Where the shutters are used to protect serveries, it is assumed that the counter is composed of noncombustible material and the counter is of sufficient width to ensure that the bottom rail movement under heating cannot result in the rail overhanging the counter.

PLEASE NOTE IF A MANUFACTURER DOES NOT HOLD A CERTIFICATE OF CONSTANCY SUCH AS 1121-CPR-RA5009 CITED ABOVE, SHUTTERS CAN NOT BE CE MARKED AND ARE ILLEGAL IN THE UK AND EUROPEAN UNION

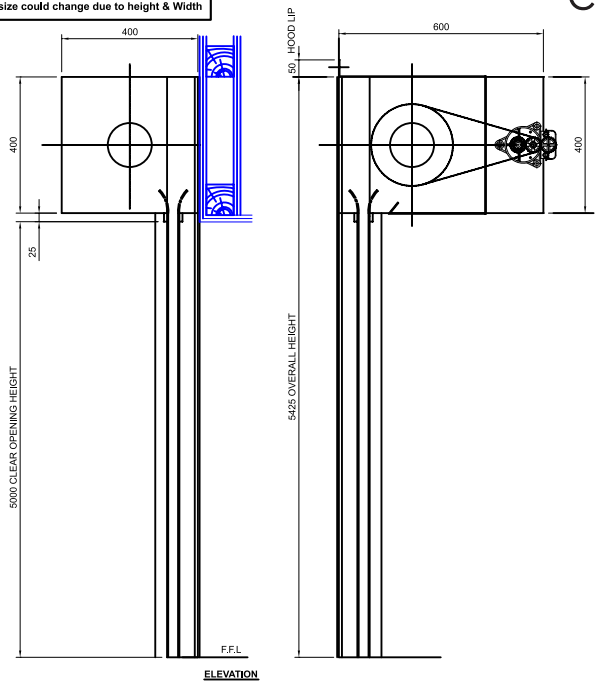
SHUTTER SIZES AND REQUIRED PERFORMANCE MUST BE CONFIRMED AGAINST OUR LATEST EXTENDED APPLICATION

Indicative drawings below, "reveal fix and face fix" relate to this specification SS15 and are illustrative only. Project specific drawings are available upon request.

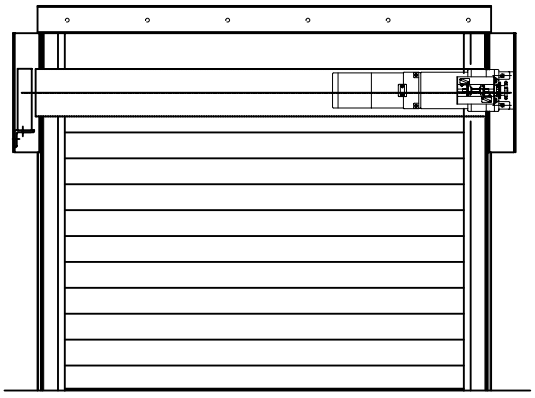
All openings must be capable of carrying the weight of the fire Shutter and be equal or greater than the fire resistance of the fire shutter assembly.

NOTE *
Indicative drawing only
Box size could change due to height & Width

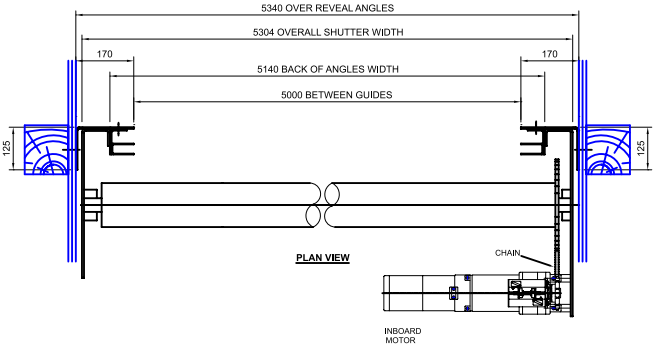
CD 15



ELEVATION



FRONT VIEW



PLAN VIEW

Preliminary
A1S Group

Fire rating:60 Min
Structure: Timber, Fire Rated Plasterboard
Quantity: 1 No
Handing:Left Hand or Right Hand Motor
Weight: 36 kgs Per Sq Metre Approx
Finish: PPC Ral Colour T.B.C

Rev	Description	Date		
			Description: FS60JM Fire Shutter Reveal Fix	Drawn By: BT
			Client:	Checked By: DL
			Project:	Date:
			All dimensions in millimetres - DO NOT SCALE	Drawing No:

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Jackson Works
Raikes Lane Industrial Estate
Bolton BL3 2NH
Telephone 01204 383839

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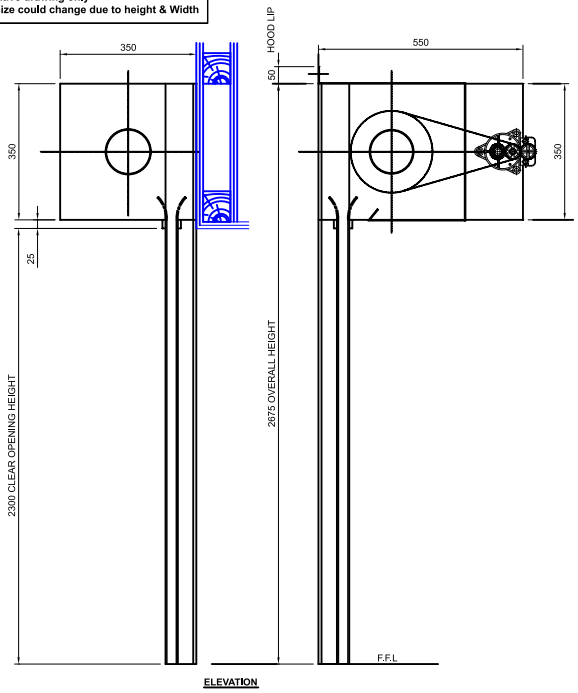
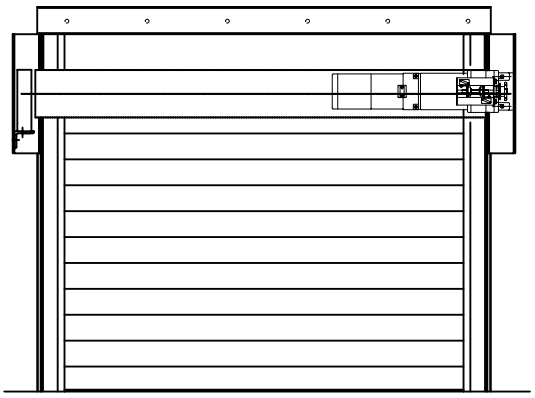
All openings must be capable of carrying the weight of the fire Shutter and be equal or greater than the fire resistance of the fire shutter assembly.

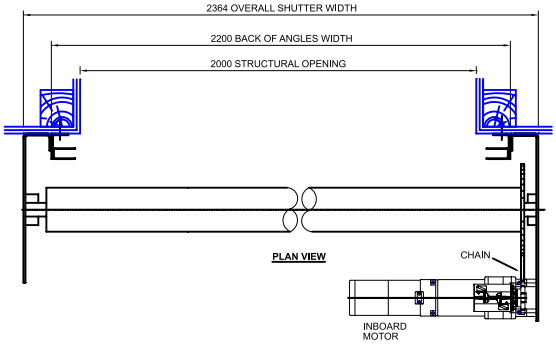
NOTE *
Indicative drawing only
Box size could change due to height & Width



ELEVATION



FRONT VIEW



PLAN VIEW

Preliminary
A1S Group

Fire rating:60 Min
Structure: Timber, Fire Rated Plasterboard
Quantity: 1 No
Handing:Left Hand or Right Hand Motor
Weight: 36 kgs Per Sq Metre Approx
Finish: PPC Ral Colour T.B.C

Rev	Description	Date		
			Description: FS60JM Fire Shutter Face Fix	Drawn By: BT
			Client:	Checked By: DL
			Project:	Date:
			All dimensions in millimetres - DO NOT SCALE	Drawing No:

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SPECIFICATION – FLAMESHIELD 240 JM FIRE ROLLING SHUTTERS "INDUSTRIAL MOTOR" (1HR, 2HR & 4HR STEEL AND MASONARY STRUCTURE)

FIRE RATED ROLLER SHUTTERS MUST BE CE MARKED IN THE UK AND EU

All our fire shutters are manufactured and produced in accordance with the parameters and technical respects indicated within the specification, which was submitted to the Warrington Fire Research Establishment. The shutters are constructed to : Fire Testing in accordance with BSEN 1634-1 and full compliance with the new Fire Standard BSEN 16034:2014.

Element Fire Research Centre No 421375 Steel and Masonry / Rigid Structure test. This is a legal requirement.
Extended Application under BS EN15269-10 2011 WF 422881 This is a legal requirement. Certificate of Constancy of Performance - 1121-CPR-RA5009 This is a legal requirement.

Curtains constructed from 76mm curved steel scroll laths interlocked with steel end locks and galvanised T section bottom rail.

The barrel is manufactured from mild steel tube. Tube sizes vary based on the overall width and height of the curtain and the gauge of laths. The tube wall thickness varies dependant on the width of the shutter, the barrels are mounted on bright steel shafts varying from 18mm to 30mm dependant on the overall size of the shutter. The shafts have mild steel bearing blocks at non geared end and industrial motor at the geared end.

Endplates: The endplates are fixed to a steel fixing angle which spans the full height of the shutter, which in turn is fixed back to the wall construction. A minimum of 2 off fixings are required, the fixing shall be along the full height of the fixing angle plus one additional fixing adjacent to the end plate spaced equidistantly along the height of the end plate.

Guides are constructed from 50mm straight channel galvanised guide mounted on 75mm x 50mm mild steel angle(minimum). For shutters of increased width compared with the tested to provide for expansion the depth of each guide rail shall be increased by 5mm for every 1m increase in width.

Hood formed from 20swg steel sheet, with the top leg slotted for expansion. Dependant on the fire rating of the shutter and the size of the opening (Hood support brackets are no longer to be used to reduce the barrel diameter). The EXAP provides for use of a canopy (appropriate restrictions apply).

Finishes: The curtain and guides are galvanised, angles, barrel and end plates are painted. A paint finish using a polyester powder coating system is available, the colour to a BS 4800 or RAL number subject to availability.

SPECIFICATION – FLAMESHIELD 240 JM FIRE ROLLING SHUTTERS "INDUSTRIAL MOTOR" (1HR, 2HR & 4HR STEEL AND MASONARY STRUCTURE)

Operation - Electrically operated 1PH / 3PH – Hand chain Override

Release Mechanisms -Fusible Link/Manual reset solenoid/Auto reset Solenoid Alternatively, Audio Visuals are available, again to be linked to the fire alarm, this unit offers the facility of a time delay, this flashes and sounds to warn that the fire shutter is closing.

SIZE PARAMETERS – STEEL AND MASONRY

The shutter test relates to 1, 2 & 4HR fire resistance. Widths are up to 9000mm, Heights up to 9000mm but ask for specific EXAP rules as width, height, and fire performance cannot be combined at maximum parameters and performance.

The shutters are generally intended for protection of a range of openings in rigid structures, i.e . steel/ blockwork/masonry. At present the maximum clear openings are for 9000mm wide x 2500mm high or in a partition system as per our EXAP certificate, principally Warrington Fire Research Centre WARRES No 421375. The test is in accordance with BS EN 1634-1 ; 2018 and the extended application process carried out in conformity with BS EN 15269-10 :2011. This relates to a tested fire shutter in a rigid structure, the opening must be fire rated to suit and be capable of carrying the weight of the shutter.

Where the shutters are used to protect serveries it is assumed that the counter is composed of noncombustible material and the counter is of sufficient width to ensure that the bottom rail movement under heating cannot result in the rail overhanging the counter.

PLEASE NOTE IF A MANUFACTURER DOES NOT HOLD A CERTIFICATE OF CONSTANCY SUCH AS 1121-CPR-RA5009 CITED ABOVE, SHUTTERS CAN NOT BE CE MARKED AND ARE ILLEGAL IN THE UK AND EUROPEAN UNION

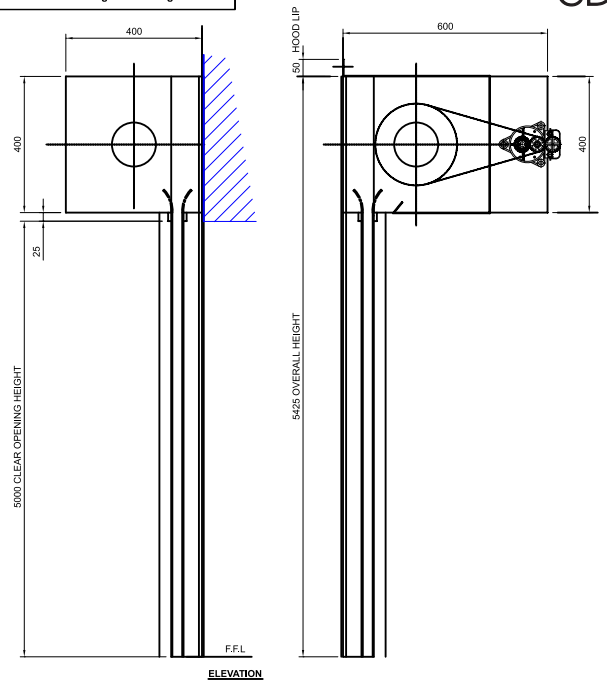
SHUTTER SIZES AND REQUIRED PERFORMANCE MUST BE CONFIRMED AGAINST OUR LATEST EXTENDED APPLICATION

Indicative drawings below, "reveal fix and face fix" relate to this specification SS16 and are illustrative only. Project specific drawings are available upon request.

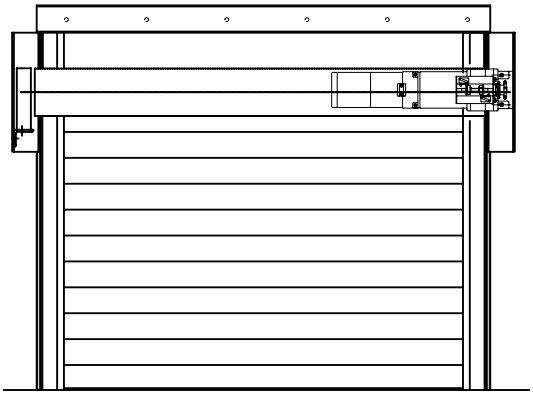
CD 16

NOTE *
Indicative drawing only
Box size could change due to height & Width

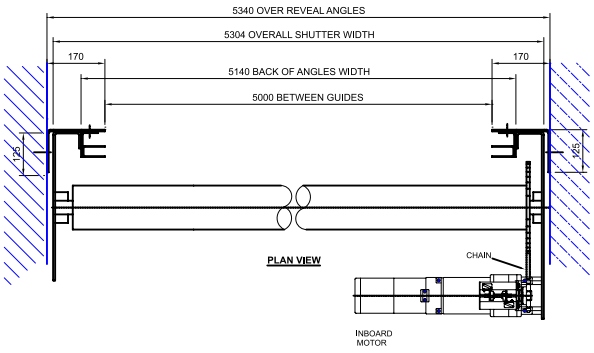
All openings must be capable of carrying the weight of the fire Shutter and be equal or greater than the fire resistance of the fire shutter assembly.



ELEVATION



FRONT VIEW



PLAN VIEW

Preliminary
A1S Group

Fire rating: 60/120/240 Min
Structure: Masonry, Steel
Quantity: 1 No
Handing: Left Hand or Right Hand Motor
Weight: 36 kgs Per Sq Metre Approx
Finish: PPC Ral Colour T.B.C

Rev	Description	Date		
			Description: FS240JM Fire Shutter Reveal Fix	Drawn By: BT
			Client:	Checked By: DL
			Project:	Date:
			All dimensions in millimetres - DO NOT SCALE	Drawing No:

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Raikes Lane Industrial Estate
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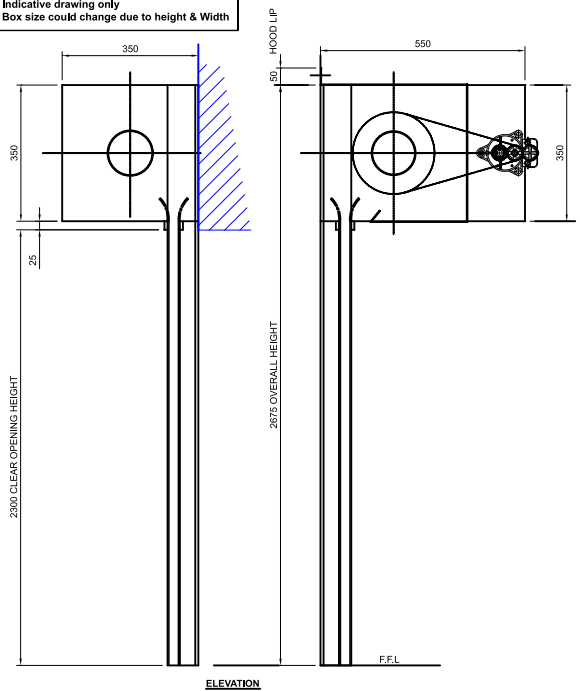
NOTE *
Indicative drawing only
Box size could change due to height & Width

All openings must be capable of carrying the weight of the fire Shutter and be equal or greater than the fire resistance of the fire shutter assembly.



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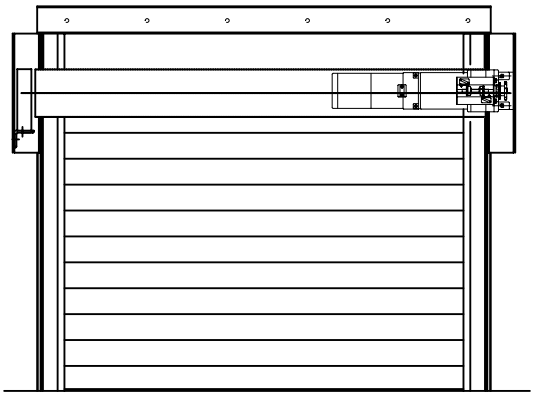
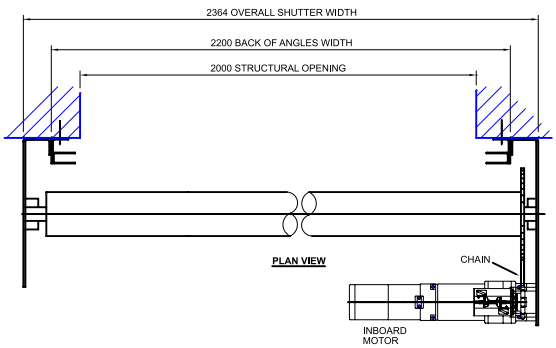


FRONT VIEW



PLAN VIEW

Preliminary
A1S Group

Fire rating: 60/120/240 Min
Structure: Masonry, Steel
Quantity: 1 No
Handing: Left Hand or Right Hand Motor
Weight: 36 kgs Per Sq Metre Approx
Finish: PPC Ral Colour T.B.C

Rev	Description	Date		
			Description: FS240JM Fire Shutter Face Fix	Drawn By: BT
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Raikes Lane Industrial Estate
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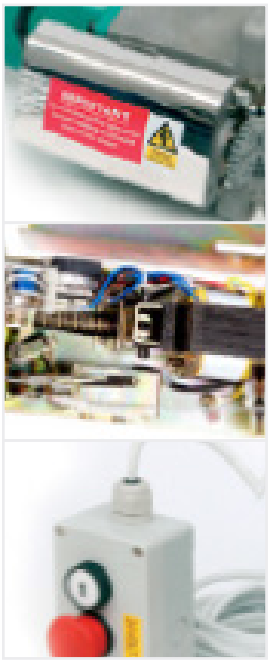
MOTORS, ANCILLARY ITEMS AND CONTROLS SPECIFICATIONS

https://fireshutter.co.uk/ Click on specification sheets SS17-SS18 to find detailed information on the following range of tested ancillary products.

a) **Key Switches A1S/KS/01**
b) **Fire Relay Unit A1S/FRU/01**
c) **Audio Visual Units A1S/AV/03**
d) **Repeater Panel A1S/RP/01**
e) **Push Button Station A1S/PBS**

Our Flameshield fire shutters utilize either tubular motors or "JM Series" industrial motors. We offer an extensive range of industrial motors from JM150 (capable of lifting up to 170kg) to JM2200 (capable of lifting up to 1800kg).

JM motors benefit from simple to adjust mechanical limit assembly and can be used on fire shutters where side room is limited. They also incorporate manual override functions with controlled descent mechanisms and motors are available in either 1ph or 3ph versions.



FIRE SHUTTER SERVICE AND PLANNED PREVENTATIVE MAINTENANCE AGREEMENTS

All of our products come with a 12-month warranty as standard. Extended warranties are available and are quoted on a case by case basis. A1S Group offers affordable service and maintenance agreements for all of our manufactured fire shutter products.

Section 38 of Building Regulations highlights our responsibility to "provide fire safety information to the responsible person at the completion of a project." Our operational and maintenance manuals are comprehensive, and we offer product training for the end user. As an end client, you will always have legally binding servicing and maintenance responsibilities and our Planned Preventative Maintenance Agreements are in place to help you comply with your responsibilities.

Further details are available at: **https://a1sgroup.com/service-repair**

BIBLIOGRAPHY AND LINKS

Citations are taken from the following list of UK and European standards. For further information or any comments related to the contents of this document please email paul@a1shutters.co.uk

BS 8524-1

BS 8524-2

BSEN 1634:2014+A1:2018

BSEN 1634-3

BS EN 16034

BSEN 13501-2

A1S Group, Jackson Works,
Raikes Lane Industrial Estate, Bolton. BL32NH

CONTACT US TODAY
TO DISCUSS YOUR NEXT PROJECT

+44 1204 383839
info@a1shutters.co.uk
www.a1sgroup.com