Kilargo

Sealing Solutions for Fire & Smoke Door Assemblies

Building integrity, safety and comfort through fire, smoke sound and energy solutions.

Contents

At Kilargo, we provide simple and smart solutions to maximise the safety, comfort and performance of commercial and multi-occupancy buildings.

Our innovative products are designed to contain the spread of fire, smoke and sound with many also providing weather protection and energy savings. We deliver integrated and cost-effective systems that are ideal for any commercial building, high-rise complex, health or education facility.

Kilargo is built on a 30-year commitment to be the best. We stand proudly at the forefront of the industry, driving standards and delivering products that lead the way in design, manufacturing and quality.

At Kilargo, we're respected experts in the principles of fire, smoke and sound. Our straight-talking approach makes it easy for clients to meet and exceed building regulations, knowing they've chosen the right system to ensure building integrity.

We know that our work can protect lives and influence reputations, so we don't just sell products. We build solid partnerships through understanding, flexibility, seamless service and genuine enthusiasm.

Kilargo is a proud Australian company with a global presence. The vast majority of our products are manufactured and sourced in Australia, meaning fast turnaround and short lead times. We also enjoy direct links to suppliers, partners and customers in the United Kingdom, Asia, the Middle East and New Zealand. Our products are rigorously, independently and regularly tested and all come with the Kilargo Integrity Seal: your guarantee that they're backed by our passion for excellence, innovation, service, partnership, expertise and sustainability.

For us, it's about providing exceptional products for great buildings: helping you to meet regulations, protect people and property, and enhance well-being. Choosing Kilargo simply means choosing the best solution for your project, every time.

The Kilargo Integrity Seal represents what our clients can expect from our products and our service.

When it comes with the Kilargo Integrity Seal, it's backed by our passion for excellence, innovation, service, partnership, expertise and sustainability. Every day, we strive to meet six key commitments – to bring you real confidence.

Excellence, Every Time

Our products perform and last. We subject every Kilargo product to tough, independent and regular testing. We have earned a reputation for exceptional quality and reliability in commercial and multi-occupancy buildings across Australia and around the world.

The Latest and Best

With Kilargo, you know you're getting the latest thinking in building safety, comfort and energy efficiency. We create, innovate and update. We are industry leaders in research and product development – and we're constantly involved in new developments internationally.

Superb Service, No Fuss

We keep our promises, tackle challenges with gusto, and deliver on time and on budget. Most of our products are manufactured and sourced domestically, meaning fast turnaround and short lead times. We pride ourselves on being technical specialists with a straight-talking approach. We make it quick and easy for you: from selection to installation.

Real Partnership

We know that our work can influence reputations and protect lives. That's why we don't sell products and walk away. We strive to truly understand our clients' needs and build enduring partnerships. That way, we see things through your eyes – so we're proactive, resourceful and always ready when you need us.

Great Team, Unbeatable Experience

With Kilargo, you get a great team that knows its stuff. We employ the best people and we're respected experts in the principles of fire, smoke and sound. We've been an internationally respected leader in the building hardware industry for more than 30 years – and we're proud to drive standards and quality further every day.

Bigger Commitment

We see the bigger picture … and our passion for the built environment extends to the natural environment. We continue to meet and exceed all relevant environmental legal requirements, reduce and manage our waste and emissions, and use resources as efficiently as possible.

Introduction

Fire Resistant Door Assemblies

Kilargo is proud to offer passive fire door sealing solutions that are proven to reduce fire severity by restricting the spread of flames and associated toxic smoke.

Fire is one of nature's most devastating forces and can have catastrophic consequences. In the built environment, fire is especially hazardous – potentially resulting in loss of life and injury from burns or smoke inhalation.

The damage associated with a building fire can also severely affect the social, economic and business livelihoods of those involved.

Creating fire-resistant compartments to subdivide a building is an internationally recognised method for limiting the spread of fire and smoke. However, unique solutions are needed to ensure that compartments remain accessible and open to traffic, while maintaining the required fire-resistance levels.

Effective sealing of openings in a fire-resistant compartment is critical. Choosing an appropriate sealing system will ensure appropriate fire-resistance levels, assist the evacuation of occupants, and allow more effective intervention from fire-fighters.

Kilargo's range of fire-resistant sealing solutions incorporate reactive intumescent materials. When exposed to elevated temperatures, they expand to many times their original volume – providing a stable, resilient and insulating barrier that inhibits the spread of flames and hot smoke.

Smoke Door Assemblies

Kilargo also provides solutions that effectively restrict the spread of smoke: a dangerous and potentially fatal by-product of fire.

As well as heat, fires produce a deadly cocktail of toxic gasses and dense smoke. This is often the major cause of fatalities, as smoke is produced in large quantities and can spread long distances. Even diluted smoke can blind and disorientate people, obscure exit signage, and hinder escape.

The application of smoke seals to door assemblies is a proven method to improve safety, help save lives, and improve tenable conditions in egress routes. These seals incorporate flexible smoke-sealing fins that restrict the passage of the cool and medium temperature smoke generated in the early stages of a fire.

Bushfire Prone Areas

One of the outcomes of the Black Saturday fires in Victoria in February 2009 was a fast-track review of Australian Building Regulations associated with bushfire prone areas.

This culminated in Standards Australia publishing a revised version of AS3959, which now provides clear guidance on the construction requirements for all new buildings in bushfire prone areas. This Standard aims to improve resistance to bushfire attack from burning embers, radiant heat, flame contact and combinations of these.

Kilargo's comprehensive range of quality fire and smoke solutions are designed to meet the standards, maximise fire safety and provide increased protection with confidence and peace-of-mind.

Building Regulations & Associated Standards

Outline

Building Regulations exist to ensure the safety and comfort of building users. In Australia's States and Territories this is regulated through the provisions outlined in the National Construction Code (NCC), comprising the Building Code of Australia (the BCA).

The BCA provides detailed guidance on performance and construction requirements for various building types and frequently references applicable Australian Standards. These documents detail specifications and procedures designed to ensure products, services and systems are safe, reliable and consistently perform the way they were intended to.

The BCA covers several areas that directly relate to the Kilargo range of door seals including:

- fire resistance
- smoke control
- bushfire risk
- sound containment

Fire Resistance/Fire Door Assemblies

The Building Code of Australia (BCA) regulates the fire resistance of building elements in Part C and stipulates where fire doors are required in a building's design and what level of fire-resistance is required. Specification C3.4 details the requirements for fire door assemblies and mandates they comply with the requirements of AS1905.1: 2005.

AS1905.1: 2005 – *Components for the fire protection of openings in fire resistants wall Part 1: Fire doors.*
This standard specifies requirements for the construction and installation of fire-resistant door sets used to protect openings in walls and partitions that are required to resist the passage of fire. The fire resistance level of a fire door assembly is determined by testing in accordance with AS1530.4.

AS1530.4 – *Fire resistance tests of elements of building construction.*
This standard provides building designers, manufacturers, test laboratories and regulatory authorities with a set of uniform requirements and criteria for the determination of a building elements fire resistance level by subjecting it to standardised fire exposure conditions.

It is important to note that Australian fire door designs are proprietary by nature. It is therefore a requirement that door seals and other items of essential hardware are tested in accordance with AS1530.4 with each fire door manufacturer's door type, ensuring they do not compromise the assembly's established fire resistance level.

Smoke Control

Smoke door assemblies are designed to improve life safety in buildings by limiting the spread of smoke through door openings and ensuring exit paths remain un-obscured and functional. Typical applications include lift lobbies, hospital corridors, hotels and unit entry doors in multi-residential apartments.

Currently a smoke door assembly must meet the 'deemed to satisfy' provisions of Specification C3.4 Part 3 of the Building Code of Australia (BCA), unless otherwise specified.

With the introduction of a performance based BCA, the use of smoke doors has increased, leading to a need to adequately specify and install doors having a quantifiable level of smoke leakage performance. Two Australian Standards have been developed to help improve life safety in buildings by limiting the spread of smoke through door openings, and providing parameters for door assembly performance based on allowable leakage rates at given temperatures and pressures.

AS6905: 2007 – *Smoke Doors.*
This standard sets out the requirements for the specification, construction and installation of smoke door assemblies and provides important guidance on maximum allowable smoke leakage rates for single and double door configurations

AS1530.7: 2007 – *Methods for fire tests on building materials, components and structures. Part 7 – Smoke control assemblies – Ambient and medium temperature leakage test procedure.*
This standard sets out a method to measure the leakage of ambient and medium temperature smoke from one side of a door assembly to the other under specified test conditions.

Bushfire Risk

The Building Code of Australia (BCA) regulates construction in bushfire prone areas for Class 2 to 9 buildings in section G, Part G5 and for Class 1 and 10 buildings Part 3.7.4 and requires construction in accordance with AS3959: 2009. (It should be noted that States' and Territories' requirements vary so please check with your local regulatory authority as to what regulations may exist for your region).

AS3959: 2009 – *Construction of buildings in bushfire prone areas.*
This standard specifies requirements for the construction of buildings in bushfire-prone areas in order to improve their resistance to bushfire attack from burning embers, radiant heat, flame contact and combinations of the three attack forms. The standard is limited to those buildings where the Bushfire Attack Level (BAL) has been determined as BAL - LOW, BAL-12.5, BAL-19, BAL-29, BAL-40 or BAL-FZ (Flame Zone) and provides detailed guidance on construction requirement's for each attack level. Door perimeter and door bottom seals from the Integrity range incorporating brush filaments and silicone rubber gaskets provide door sealing solutions as required by this standard.

The Standards utilised to measure and evaluate material performance for each attack level include:

AS1530.8.1:2007 – *Tests on elements of construction for buildings exposed to simulated bushfire attack – Radiant heat and small flaming sources*
This Standard specifies methods for determining the performance of external construction elements when exposed to radiant heat, burning embers and burning debris.

AS1530.8.2:2007 – *Tests on elements of construction for buildings exposed to simulated bushfire attack – Large flaming sources*
This Standard specifies methods for determining the performance of external construction elements when exposed to direct flame impingement from the fire front.

Easy Selection

To help you choose the right door seal for your project or specification, the following symbols are used throughout this brochure.

Use the key below to identify, at a glance, what each product is designed to do.

Ambient (cold) temperature smoke:

Seals for this designation are designed to control smoke at ambient temperature conditions.

Medium temperature smoke:

Seals for this designation are designed to contain smoke at 200° C for 30 minutes exposure, as per the 'deemed-to-satisfy' requirements of Specification C3.4 of the Building Code of Australia.

Hot smoke:

Hot smoke seals incorporate an intumescent material that rapidly expands in volume upon heating. These types of seals limit the spread of hot smoke and gases produced by fully developed fires.

Approved for use on proprietary fire doors:

Fire tests to AS1530/4 have been conducted on one or more proprietary fire door constructions to show that the addition of these seals will not affect the already established fire resistance levels of the fire doors. Strict compliance with AS1905/1 requires each door type to be tested with each item of hardware. For each project, please check with the respective fire door manufacturer to verify that their door construction has the relevant listing for Kilargo Integrity Seals.

Approved for use on proprietary smoke doors:

Seals for this designation have been tested in accordance with AS1530/7 for smoke leakage, providing ambient or medium temperature leakage rates across various pressures.

Antimicrobial version available

Our range of antimicrobial seals are designed to reduce the growth of harmful organisms such as bacteria, mould and fungi, while remaining safe for even the most sensitive applications. The range incorporates the established silver technology Steri-Touch® which is particularly effective against illness causing bacteria such as MRSA, E.Coli and Salmonella.

Sound containment (acoustics):

Testing for door assemblies incorporating these seals has been conducted to AS1191 and/or ISO140 Part 3/ ISO10140.2 both Rw and STC single value ratings are available as calculated using the principles of AS/NZS ISO717.1.

The Building Code of Australia 2011 sets out specific acoustic performance requirements for door assemblies in a number of situations.

Please check with your local regulatory authority as to what regulations may exist for your region.

Design for access & mobility:

When installed as per our instructions, these seals offer very low frictional forces, thereby eliminating any increase to the opening and closing forces of the door—an important consideration when meeting the requirements of AS1428/1.

Energy efficient:

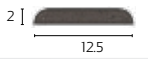
Door assemblies fitted with appropriate seals can greatly assist in reducing air movement within buildings. Whether controlling warm or cool air, seals play a vital role in maintaining the equilibrium of air conditioned spaces. Reducing leakage paths greatly assists in improving the overall energy efficiency of the building.

Product Illustrations

All dimensions in this brochure are in millimetres and illustrations are not to scale.
NOTE: Use of the icons does not necessarily indicate that test evidence exists. Please check with our technical team.

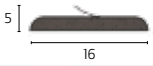
Dimensioned Product Guide

Fire and Smoke Seals



KG1202

KG1602



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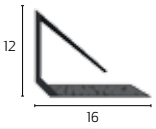

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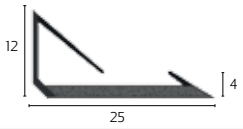

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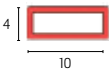

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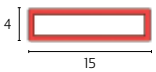

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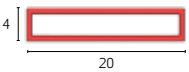

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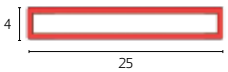

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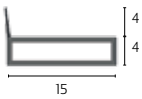

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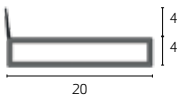

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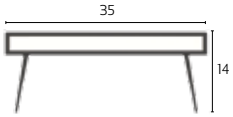

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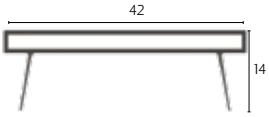
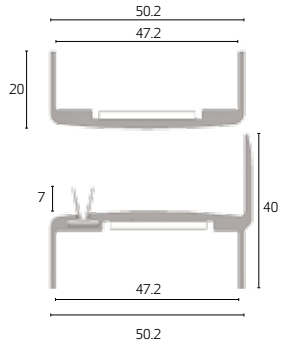
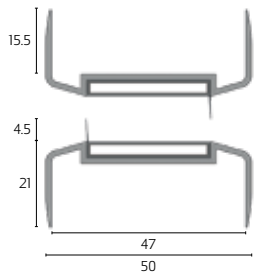


KP4204TF

Fire Door Meeting Stile Seals

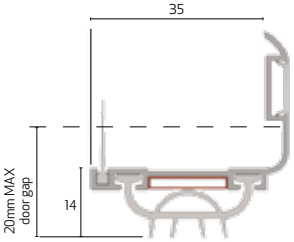


FDMS-TP



FDMS-BB

Fire Door Upgrade Seals



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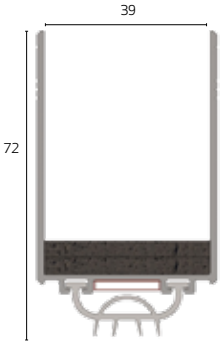
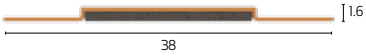
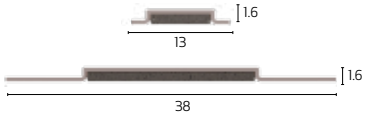


FDBU60-35

FDBU60-45



KG4002



KG5102

Apart from the seals illustrated above, Kilargo can also manufacture a range of bespoke sealing solutions, as highlighted throughout this brochure.

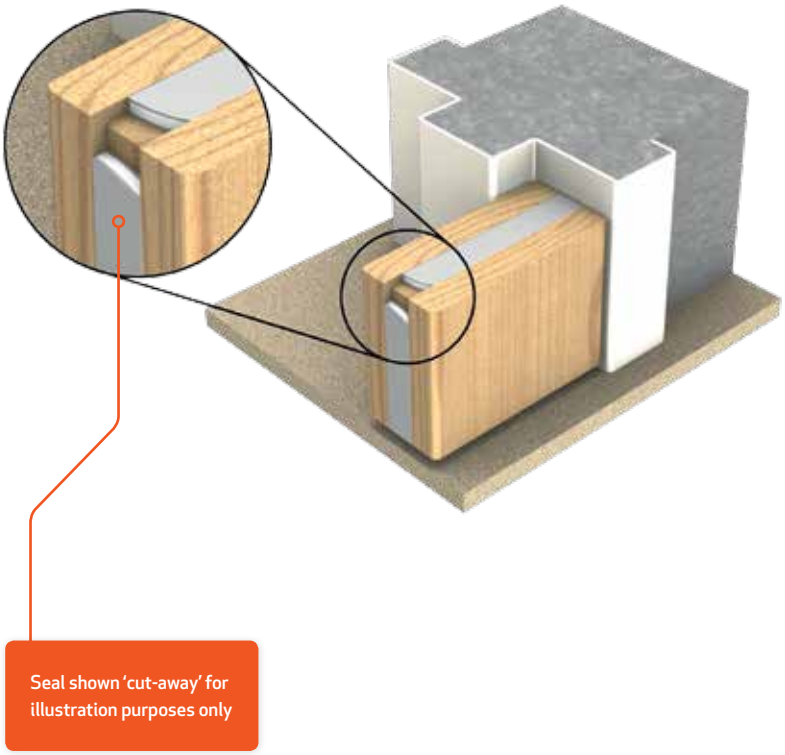
Integrity Architectural Seals are also utilised in many fire and smoke sealing solutions, which, when properly located and secured, help prevent the passage of smoke from one compartment to another. These seals can take the form of mechanical, compression or sweep-action type door seals.

Fire & Smoke Seals for Door Assemblies

Product Information

KP1004, KP1504, KP2004, KP2504

High performance sodium silicate based intumescent fire seal. The intumescent core is encapsulated in a flame-retardant PVC outer casing for rebating into the perimeter of fire door assemblies. When exposed to fire conditions, these intumescent strip seals expand to many times their original volume, sealing off the door perimeter to prevent the passage of hot smoke & other toxic gases.



Seal shown 'cut-away' for illustration purposes only

Gap Size

Minimum 1mm – Maximum 3mm

The product sits flush with the edge of the door leaf or door frame edge.

Standard Lengths

- 1000mm
- 2100mm
- 2400mm
- 2700mm
- 3000mm

Standard Colours

- Black
- Grey
- (White & dark brown available to special order).

Fixing

The product fits into a groove made in the door frame or the edge of the door leaf and is secured using the self-adhesive tape backing.

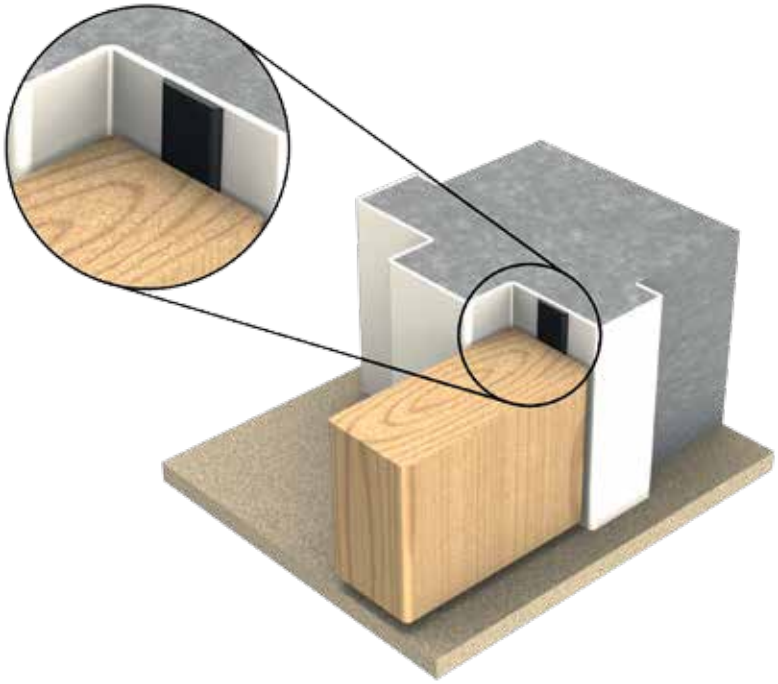
Approvals

- AS1530/4 fire tests with proprietary fire door assemblies for up to 2 hours fire rating.

✓ *Please check with our Technical Department or the Fire Door Manufacturer for relevant test approvals and suitability for door type.*

KG1202, KG1602

Flexible, graphite based intumescent fire seals which are easily applied to the perimeter of fire door assemblies. When exposed to fire conditions, these strip seals expand to many times their original volume, sealing off the door perimeter to prevent the passage of hot smoke and other toxic gases.



Gap Size

Nominal 3mm perimeter gaps.

Sizes

KG1202: 12mm x 2mm

KG1602: 16mm x 2mm

Standard Length

50 metre coils.

Standard Colour

- Black

Fixing

This product can be simply retrofitted to a steel frame, or set into a mortised groove in the door frame or the edge of the door leaf, using the aggressive self-adhesive backing tape.

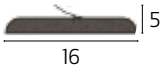
Approvals

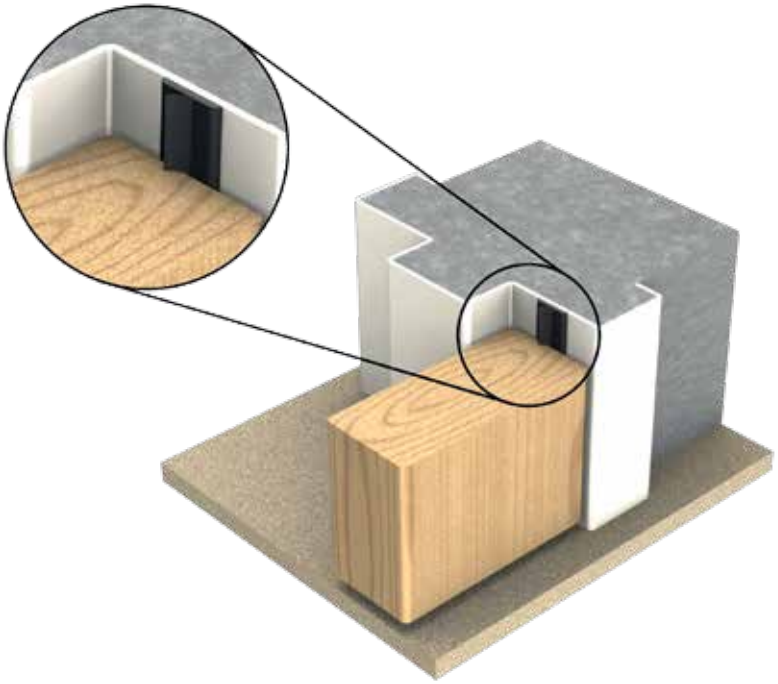
- AS1530/4 fire tests with proprietary fire door assemblies, providing up to 2 hours fire resistance.

✓ *Please check with our Technical Department or the Fire Door Manufacturer for relevant test approvals and suitability for door type.*

KG1602AS

Flexible, graphite based intumescent combined fire and smoke seal which is easily applied to the perimeter of fire door assemblies. When exposed to fire conditions, these strip seals expand to many times their original volume, sealing off the door perimeter to prevent the passage of hot smoke and other toxic gases. These seals also incorporate an offset fin to provide smoke control across all temperatures.





Gap Size

Nominal 3mm perimeter gaps.

Sizes

Standard Length: 50 metre coils.

Standard Colours

- Black

Fixing

This product can be simply retrofitted to a steel frame, or set into a mortised groove in the door frame or the edge of the door leaf, using the aggressive self-adhesive backing tape.

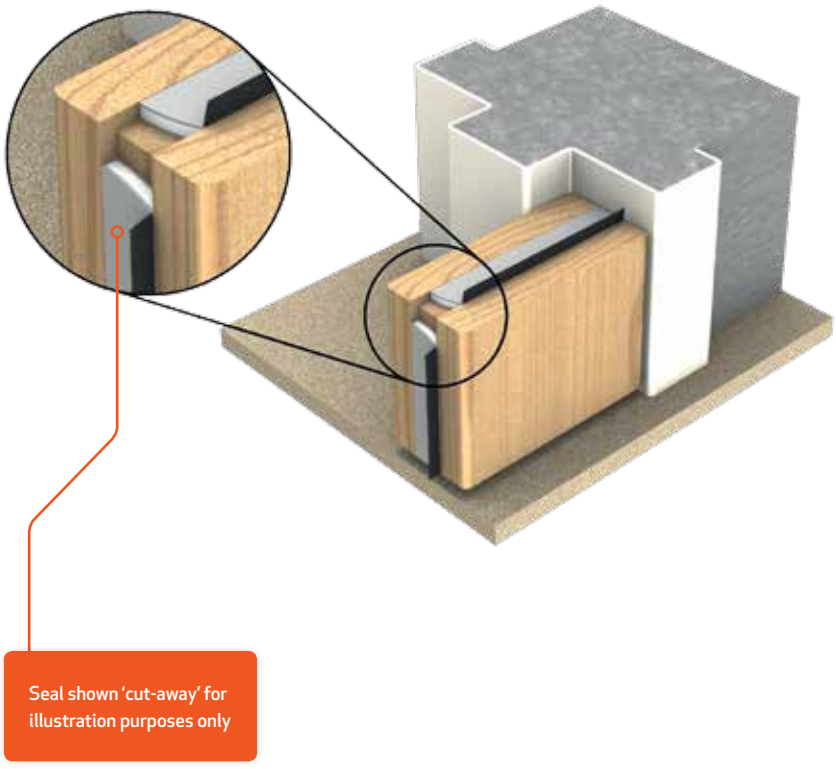
Approvals

- AS1530/4 fire tests with proprietary fire door assemblies, providing up to 2 hours fire resistance.

✓ *Please check with our Technical Department or the Fire Door Manufacturer for relevant test approvals and suitability for door type.*

KP1504AS, KP2004AS

High performance sodium silicate based intumescent fire and smoke seal. The intumescent core is encapsulated in a flame-retardant PVC outer casing with an asymmetrical smoke and acoustic fin. Incorporated into the perimeter of fire door assemblies. When exposed to fire conditions, these intumescent strip seals expand to many times their original volume, sealing off the door perimeter to prevent the passage of hot smoke & other toxic gases.



Seal shown 'cut-away' for illustration purposes only

Gap Size

Minimum 2mm – Maximum 3mm

The PVC casing sits flush with the edge of the door leaf or door frame edge.

Sizes

Standard Lengths:

- 1000mm
- 2100mm
- 2400mm
- 2700mm
- 3000mm

Standard fin height: 4mm

Standard Colour

- Black
- Grey

Fixing

The product fits into a groove made in the door frame or the edge of the door leaf and is secured using the self-adhesive tape backing.

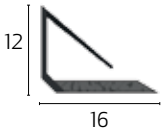
Approvals

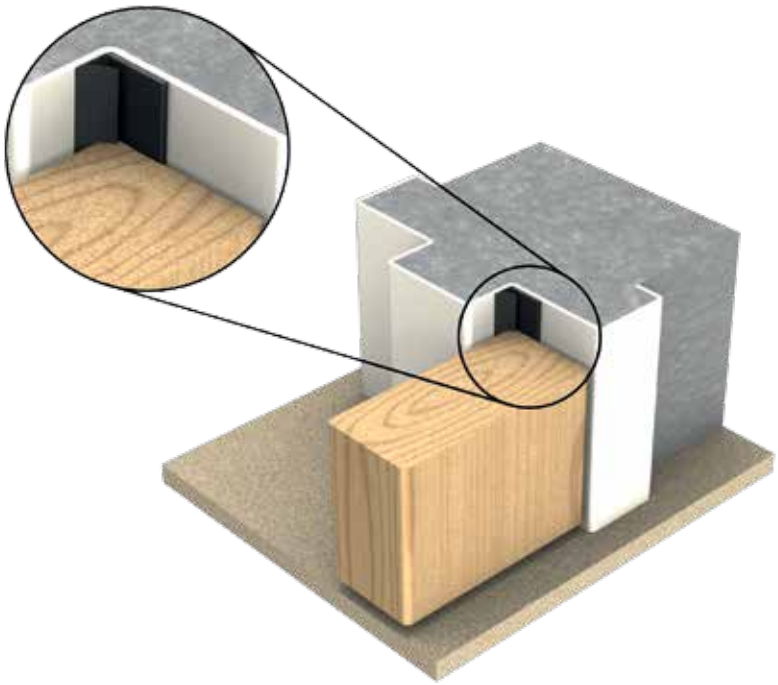
- AS1530/4 fire tests with proprietary fire door assemblies for up to 2 hours fire rating.
- Can be considered deemed to satisfy to BCA Specification C3.4 for use with smoke doors (when fitted to compliant door leaf).
- Acoustic testing to AS1191 and AS/NZS ISO717.1 2004 in conjunction with other Kilargo Integrity seals.
- Independent tests have been conducted demonstrating over 100,000 open and close cycles without significant wear.

✓ *Please check with our Technical Department or the Fire Door Manufacturer for relevant test approvals and suitability for door type.*

KG1612BW

A flexible, graphite based intumescent combined fire and smoke seal which is easily applied to the perimeter of fire door assemblies. The seal has a high performance graphite based intumescent core with PVC skin combined with an elastomeric sealing blade. Supplied with aggressive self-adhesive backing tape on both flanges of the carrier, these strip seals expand to many times their original volume when exposed to fire conditions, sealing off the door perimeter to prevent the passage of fire, smoke, sound, draughts, dust and light.





Gap Size

Minimum 2mm – Maximum 3mm

Sizes

Door Sets:

- Single: 1 x 1000mm, 2 x 2100mm
- Long Single: 1 x 1000mm, 2 x 2750mm
- Double: 3 x 2100mm
- Long Double: 1 x 2100mm, 2 x 2750mm

Standard lengths:

- 1000mm, 2100mm, 2400mm, 2700mm, 3000mm

Standard Colours

- Black
- White

Fixing

The product is fitted along the rebate of the door frame perimeter and applied using the integral self-adhesive backing tape.

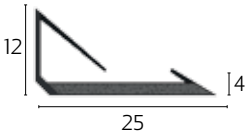
Approvals

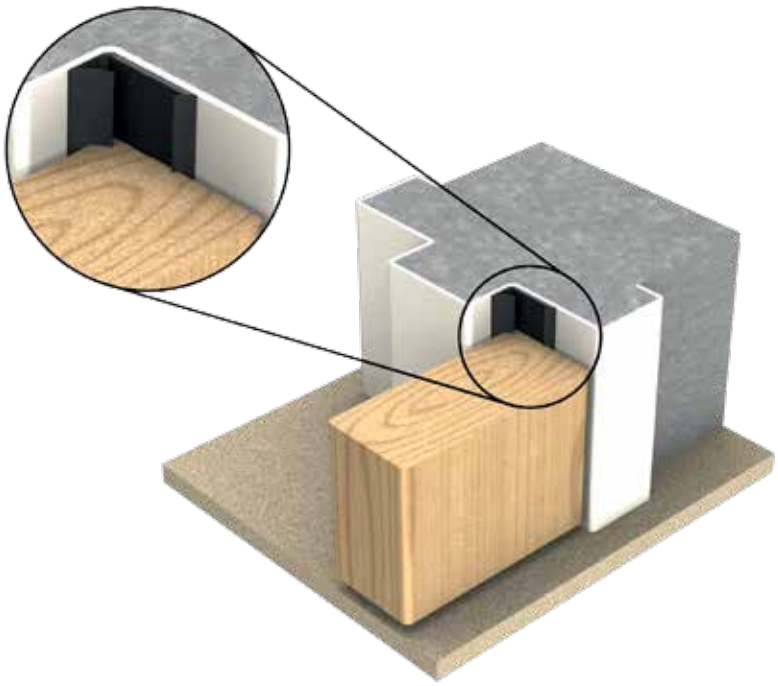
- AS1530/4 fire tests with proprietary fire door assemblies, providing up to 2 hours fire resistance.

✓ *Please check with our Technical Department or the Fire Door Manufacturer for relevant test approvals and suitability for door type.*

KG2512BW

A flexible, graphite based intumescent combined fire and smoke seal which is easily applied to the perimeter of fire door assemblies. The seal has a high performance graphite based intumescent core with PVC backing incorporating two elastomeric sealing fins. Supplied with aggressive self-adhesive backing tape on both flanges of the carrier, this versatile seal is simply fitted to the rebate of a door frame perimeter to provide resistance against fire, smoke (ambient, medium & hot temperature), sound, draughts, dust and light.





Gap Size

Nominal 3mm

Sizes

Door Sets:

- Single: 1 x 1000mm, 2 x 2100mm
- Long Single: 1 x 1000mm, 2 x 2750mm
- Double: 3 x 2100mm
- Long Double: 1 x 2100mm, 2 x 2750mm

Standard lengths:

- 1000mm, 2100mm, 2400mm, 2700mm, 3000mm

Standard Colour

- Black

Fixing

The product is fitted along the rebate of the door frame perimeter and applied using the integral self-adhesive backing tape.

Approvals

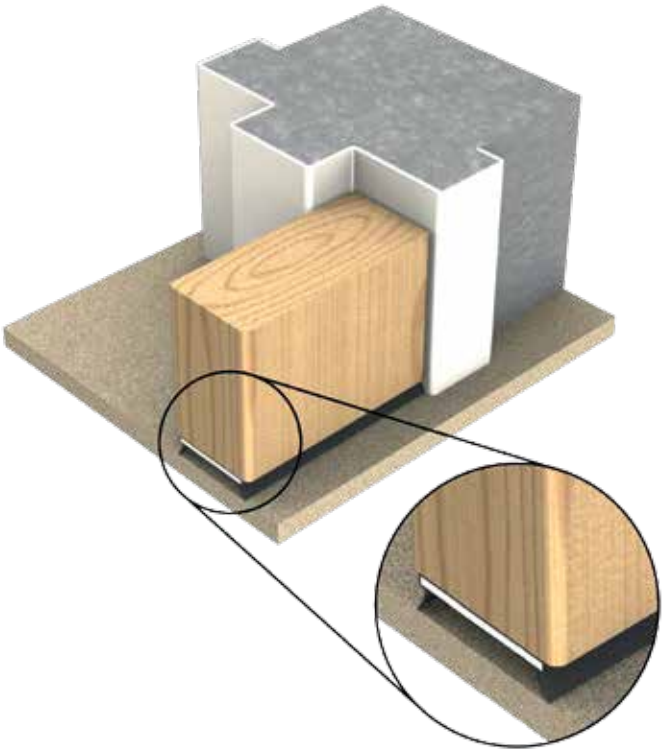
- AS1530/4 fire tests with proprietary fire doors providing up to 2 hours fire resistance.
- AS1530/7 air (smoke) leakage rates available at ambient & medium temperature at various pressures.
- Acoustic ratings to AS1191 and AS/NZS ISO717.1 2004 in conjunction with other Kilargo Integrity seals.
- Tests have been conducted demonstrating over 100,000 open and close cycles without significant wear.

✓ *Please check with our Technical Department or the Fire Door Manufacturer for relevant test approvals and suitability for door type.*

KP3504TF, KP4204TF

These door bottom seals incorporate a high performance intumescent core with a rigid PVC casing combined with dual elastomeric smoke and acoustic fins. Supplied with aggressive self-adhesive backing, they are utilised for fire, smoke and life safety door assemblies to provide resistance against all stages of fire and smoke whilst also providing excellent acoustic properties.

These seals also provide an ideal alternative for double swing pivot door assemblies, where the smoke seal can remain uninterrupted while the seal body is checked to allow for any door hardware.



Gap Size

Nominal 10mm
(dependent upon installation)

Sizes

- KP3504TF: Suitable for minimum door thickness of 35mm
- KP4204TF: Suitable for minimum door thickness of 42mm

Standard lengths:

- 820mm, 920mm, 1220mm
  (Other sizes to special order)

Standard fin height: 9mm

Standard Colours

- Black

Fixing

The product is fitted to the underside of the door leaf using the aggressive self-adhesive backing tape and simple screw-fixing.

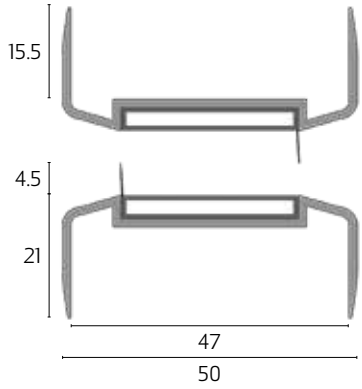
Approvals

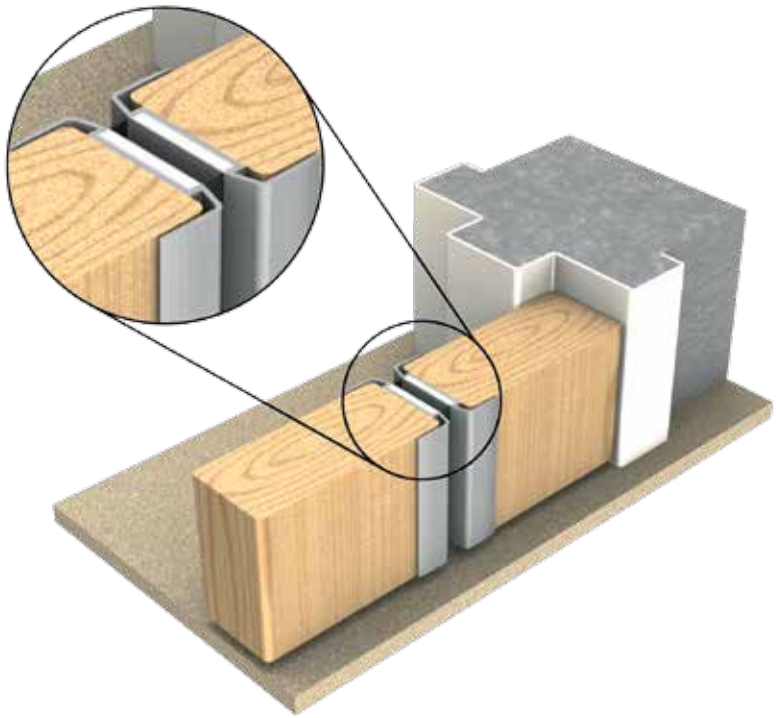
- AS1530/4 fire tests with proprietary fire doors providing up to 2 hours fire resistance.
- AS1530/7 air (smoke) leakage rates available at ambient & medium temperature at various pressures.
- Complies with the deemed to satisfy provisions of BCA C3.4 limiting smoke at 200°C for 30 minutes (when fitted to compliant door leaf).
- Tests have been conducted demonstrating over 100,000 open and close cycles without significant wear.

✓ *Please check with our Technical Department or the Fire Door Manufacturer for relevant test approvals and suitability for door type.*

FDMS-BB (Bullnose Meeting Stile Seals)

An aluminium meeting stile sealing system designed specifically for high performance smoke and sound containment for pairs of nom. 47mm **double-action** proprietary fire door assemblies.





Gap Size

Minimum 2.5mm – Maximum 5mm
(As per the relevant tested prototype)

Sizes

Standard lengths:

- 2135mm, 2440mm, 3050mm, 3500mm

Standard Colour

- Clear anodised finish with silver colour fire seal and black offset fin.

Fixing

The Kilargo FDMS-BB bullnose meeting stile set comes complete with the aluminium sections and intumescent fire and smoke seals. Simply cut to length, screw aluminium sections onto the respective door leaves and insert the intumescent seals using aggressive self-adhesive backing tape.

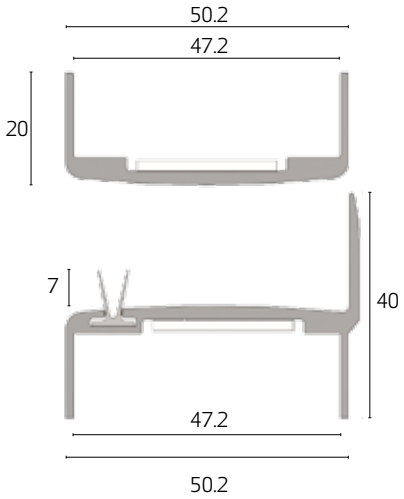
Approvals

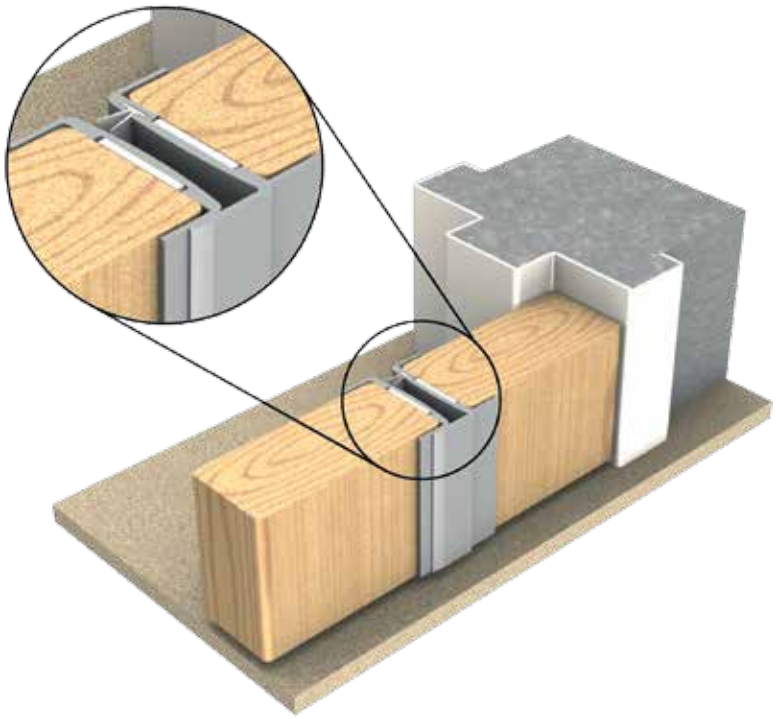
- AS1530/4 fire tests with proprietary fire doors providing up to 2 hours fire resistance.
- Can be considered deemed to satisfy to BCA specification C3.4 for use with smoke doors.
- Can provide acoustic ratings to AS1191 and AS/NZS ISO717.1 2004 in conjunction with other Kilargo Integrity seals.

✓ *Please check with our Technical Department or the Fire Door Manufacturer for relevant test approvals and suitability for door type.*

FDMS-TP (T-Bar Meeting Stile Seals)

An aluminium meeting stile sealing system designed specifically for high performance smoke and sound containment for pairs of nom. 47mm **single-action** proprietary fire door assemblies.





Gap Size

Minimum 2.5mm – Maximum 5mm
(As per the relevant tested prototype)

Sizes

Standard lengths:

- 2135mm, 2440mm, 3050mm, 3500mm

Standard Colours

Clear anodised finish with grey silicone insert.

Fixing

The Kilargo FDMS-TP T-Bar meeting stile set comes complete with the intumescent and silicone seal fitted. Simply cut to length and screw-fix to the respective door leaves.

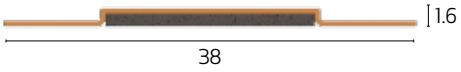
Approvals

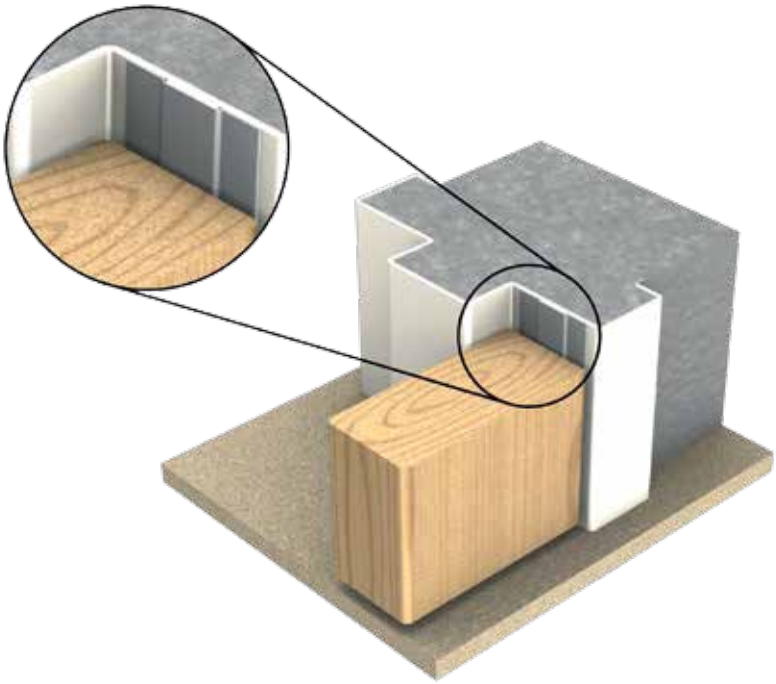
- AS1530/4 fire tests with proprietary fire doors providing up to 2 hours fire resistance.
- Can be considered deemed to satisfy to BCA specification C3.4 for use with smoke doors.
- Can provide acoustic ratings to AS1191 and AS/NZS ISO717.1 2004 in conjunction with other Kilargo Integrity seals.

✓ *Please check with our Technical Department or the Fire Door Manufacturer for relevant test approvals and suitability for door type.*

KG4002

Intumescent retro-fit seal for upgrading fire door perimeter gaps where the clearance exceeds the maximum 3mm specified by AS1905/1. This seal can upgrade existing proprietary fire doors with up to and including 6mm perimeter gaps. The high performance intumescent is protected by a PVC top-hat section and simply adhered to the door frame with aggressive self-adhesive tape.





Gap Size

Up to and including 6mm perimeter gaps

Sizes

Door Sets:

- Single: 1 x 1000mm, 2 x 2100mm
- Long Single: 1 x 1000mm, 2 x 2750mm
- Double: 3 x 2100mm
- Long Double: 1 x 2100mm, 2 x 2750mm

Standard lengths:

- 1000mm, 2100mm, 2400mm, 2700mm, 3000mm

Standard Colour

- White
- Silver
- Dark Brown

(Can be painted on site).

Fixing

The KG4002 intumescent seal is simply applied to the top and sides of the door frame with aggressive self-adhesive tape. No screw fixing required.

Approvals

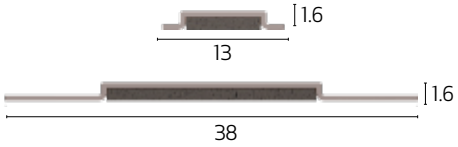
- AS1530/4 fire tests with proprietary fire doors providing up to 2 hours fire resistance.

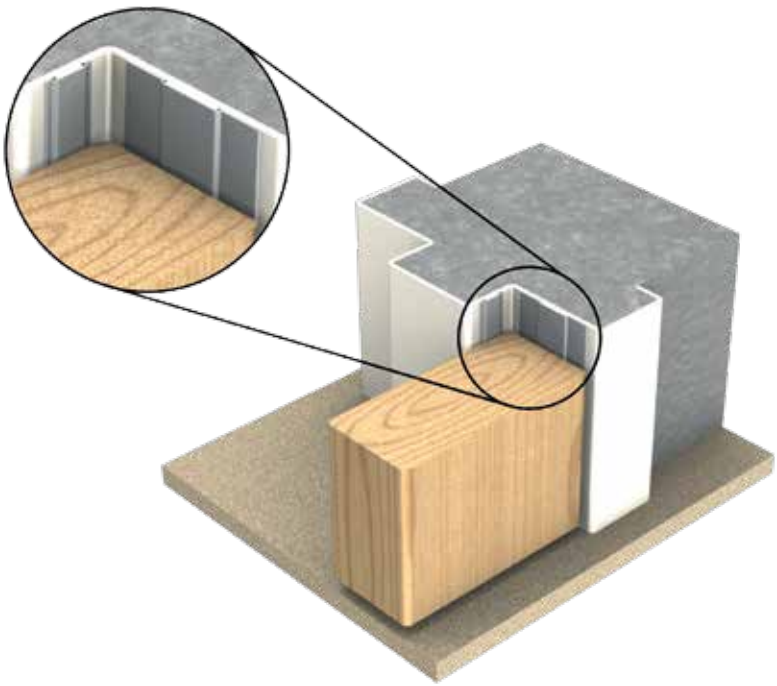
✓ *Please check with our Technical Department or the Fire Door Manufacturer for relevant test approvals and suitability for door type*

KG5102

Intumescent retro-fit seal set for upgrading non-rated steel (back-filled) fire door frames with only 15mm stops (in lieu of the conventional 25mm door stops required for fire doors).

The 38mm x 1.6mm plus 13mm x 1.6mm PVC encapsulated intumescent fire seal set, is adhered to the steel frame with aggressive self-adhesive backing tape.





Gap Size

Nominal 2mm to 3mm perimeter gaps

Sizes

Standard lengths:

- 1000mm, 2100mm, 2400mm, 2700mm, 3000mm

Standard Colours

- White
- Silver

(Can be painted on site).

Fixing

The KG5102 intumescent seal set is simply applied to the top and sides of the door frame with aggressive self-adhesive tape. No screw fixing required.

Approvals

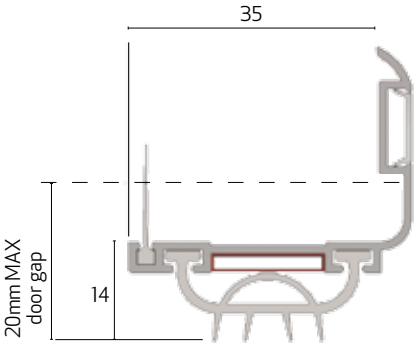
- AS1530/4 fire tests with proprietary fire doors providing up to 2 hours fire resistance.
- Complies with AS1905/1.

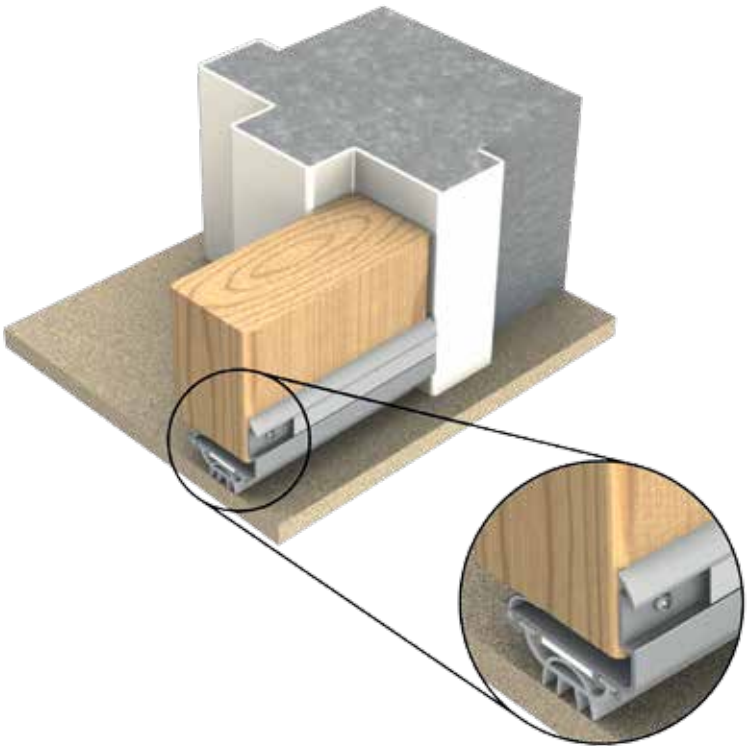
✓ *Please check with our Technical Department or the Fire Door Manufacturer for relevant test approvals and suitability for door type.*

FDBU20

A retrofit, intumescent fire door bottom upgrade seal, used to upgrade existing fire doors where door bottom gaps exceed the allowable 10mm as per AS1905/1.

This retrofit upgrade seal provides a cost-effective alternative to door replacements, where existing non-compliant fire doors can be salvaged.





Gap Size

Seals gap sizes up to 20mm maximum, under nom. 35mm and 45mm proprietary fire doors.

Sizes

Standard lengths:

- 820mm, 920mm, 1220mm

Standard Colour

Clear anodised (silver) with grey silicone gaskets.

Bronze anodised with black silicone gaskets available to special order.

Fixing

The FDBU20 is supplied with pre-drilled, slotted holes and appropriate screws, allowing for easy application onto the bottom of fire door leafs.

Approvals

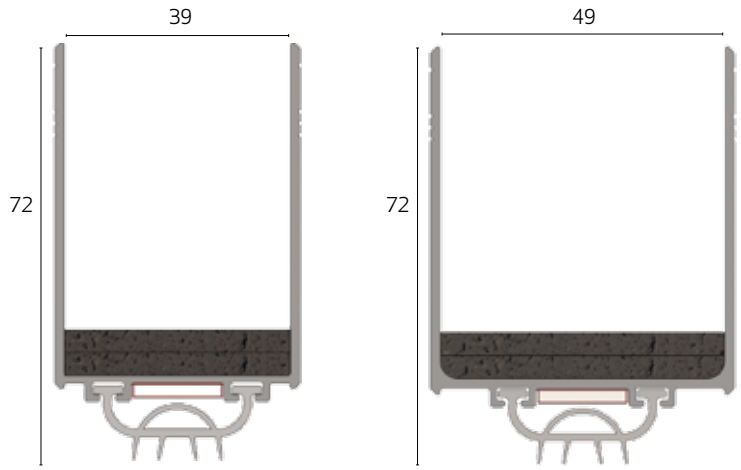
- AS1530/4 fire tests with proprietary fire doors providing up to 2 hours fire resistance.
- Complies with AS1905/1.

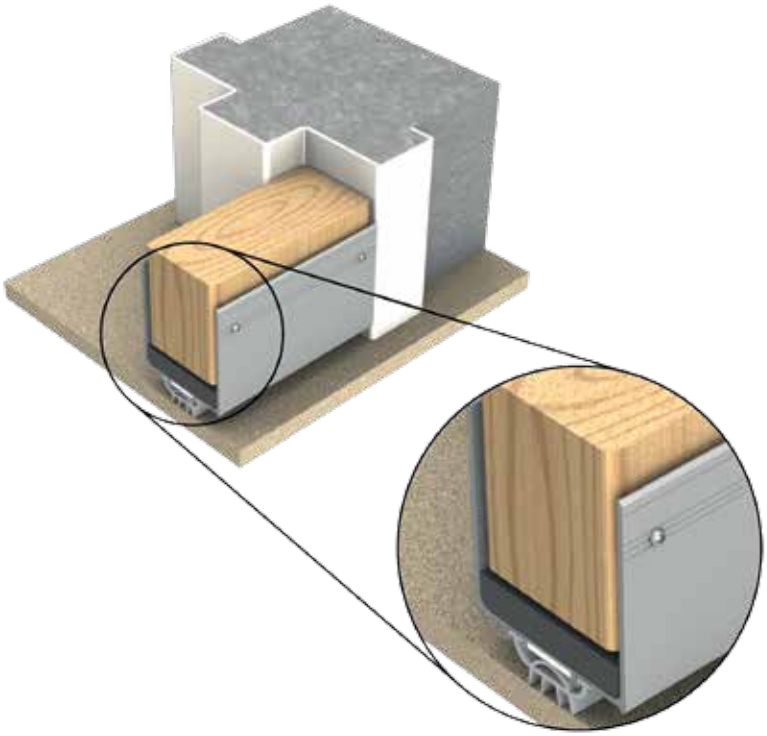
✓ *Please check with our Technical Department or the Fire Door Manufacturer for relevant test approvals and suitability for door type.*

FDBU60

Retrofit, intumescent fire door bottom upgrade seals, used to upgrade existing fire doors where door bottom gaps exceed the allowable 10mm as per AS1905/1.

This retrofit upgrade seal provides a cost-effective alternative to door replacements, where existing non-compliant fire doors can be salvaged.





Gap Size

FDBU60-35: Can seal gaps up to 60mm maximum under nom. 35mm proprietary fire doors.

FDBU60-45: Can seal gaps up to 60mm maximum under nom. 45mm proprietary fire doors.

Sizes

Standard lengths:

- 820mm, 920mm, 1220mm

Standard Colours

Clear anodised (silver) with grey silicone gaskets.

Bronze anodised with black silicone gaskets available to special order.

Fixing

The FDBU60 is supplied with pre-drilled, slotted holes and appropriate screws, allowing for easy application onto the bottom of fire door leafs. (Aluminium screw-fixed end plates are also available separately).

Approvals

- AS1530/4 fire tests with proprietary fire doors providing up to 2 hours fire resistance.
- Complies with AS1905/1.

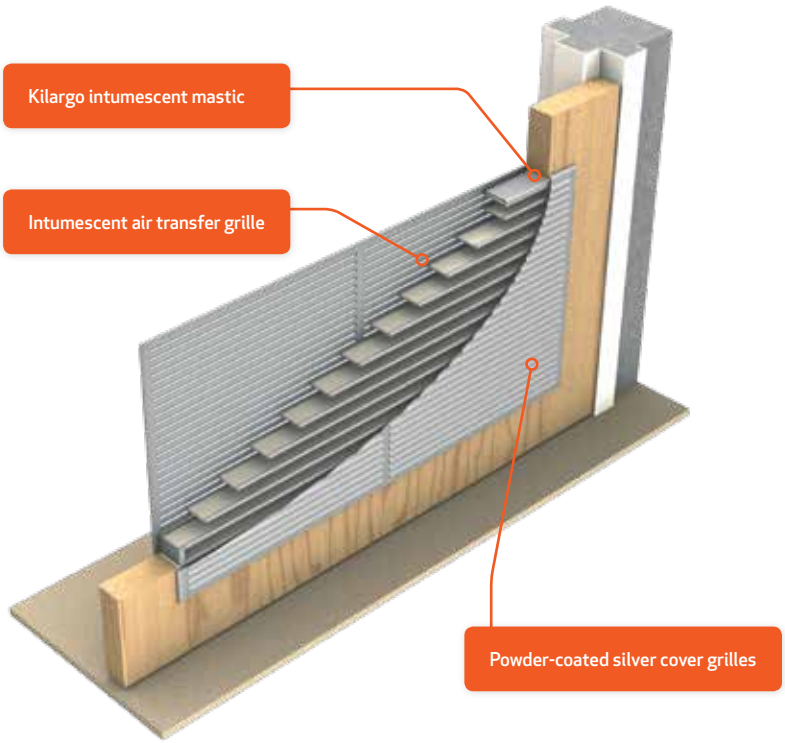
✓ *Please check with our Technical Department or the Fire Door Manufacturer for relevant test approvals and suitability for door type.*

IFD-D Intumescent Fire Door Kits

The IFD-D series intumescent grilles have been fire tested in accordance to AS1530.4 for up to and including a 2 hour rating with most proprietary fire door assemblies, complying with AS1905.1.

The damper units are slimline with an overall thickness of only 35mm allowing them to be flush-fitted within conventional 35 and 45mm nominal fire door leaves. They are easily installed in new or existing fire doors and have no moving parts, resulting in a robust, trouble-free installation which will not rattle or vibrate during door operation.

The IFD-D intumescent fire damper kit comes complete with a pair of decorative face-fixed powder coated cover grilles that provide a clean, neat appearance, plus a tube of Kilargo fire-rated mastic.



Sizes

Standard door kit sizes:

- 600mm x 300mm
- 450mm x 450mm
- 600mm x 600mm

Standard Colour

Powder-coated silver cover grilles.

Fixing

The IFD-D damper cell is centred into the prescribed door cut-out and held in place with Kilargo intumescent mastic. The decorative cover grilles are then secured to both sides of the door leaf with screws provided.

Approvals

- AS1530/4 fire tests with proprietary fire doors providing up to 2 hours fire resistance.
- Complies with AS1905/1

✓ *Please check with our Technical Department or the Fire Door Manufacturer for relevant test approvals and suitability for door type.*

Fire & Smoke Seals for Door Assemblies

Product Solutions

Fire Door Sealing Solutions

Proprietary Fire Doors

Fire doors are a proprietary product. Despite similarities in manufacture and supply, each fire door must have its own test data outlining its field of application as mandated by the Building Code of Australia through the requirements set out in AS1905 Part 1.

For the Australian market, conventional fire doors have typically consisted of non-combustible core materials such as Vermiculite and mineral fibre, clad with plywood or MDF facings with concealed timber edge strips, allowing for easy installation into steel door frames. All items of door hardware, whether essential or non-essential are required to comply with the fire test requirements as governed by AS1905 Part 1, determined by fire resistance testing to AS1530 Part 4.

With architects looking more and more at form as well as function in today's commercial world, there are many options available for various types and applications of fire door hardware. However, it is very important to understand that door hardware is not generic. Fire door hardware must be tested to specific proprietary fire door assemblies. Essential seals (like intumescent) and non-essential door seals (including smoke and acoustic seals) are also required to undergo testing on proprietary fire-rated doorsets.

Fire Resistance Levels

The Building Code of Australia (BCA) uses Fire Resistance Levels (FRL) to nominate the required fire rating for different fire resistant barriers within a given building. These fire resistant barriers are created to limit a potential fire to a particular area (compartment) within a building, minimising the effects of fire on the building and its occupants.

Fire Resistance Level (FRL) is the classification period in minutes determined in accordance with Specification A2.3 of the BCA, for the following criteria—

a) *structural adequacy*; and

b) *integrity*; and

c) *insulation*,

These are always expressed in this order.

As fire doors are not structural elements, they are not required to have a rating for Structural Adequacy. Similarly, the BCA also provides a generic non-exposed side temperature rise or insulation concession, allowing fire doors to only require 30 minutes insulation as part of their required FRL.

For example, a door opening in a non-load bearing partition wall with an FRL of -60/60 would require a '1 hour' fire door assembly (having a 1 hour Integrity rating), and would be expressed as: -/60/30.

This would represent a typical apartment entry door application.

Although we have tight controls for fire safety via our BCA and Fire Door Standard, it is important to realise that the minimum clearances stipulated for fire door assemblies in AS1905 Part 1, will not necessarily provide effective smoke and sound containment that many fire door applications may need. So called 'tight-fitting- fire doors with typical 3mm perimeter clearances and up to 10mm door bottom clearances, will allow excessive smoke and sound leakage unless otherwise sealed.

Kilargo has the sealing solutions.

Fire Door Sealing Solutions cont'd

The Solutions

Gaps around the edges of a fire door leaf are essential to enable effective operation of the door assembly. However, these small gaps do allow hot gases and toxic smoke to leak through, with potential for fire to spread from one compartment to the next. Kilargo provides sealing solutions that can effectively restrict the spread of hot gases and smoke across varying temperatures when applied to the perimeter of proprietary fire doors.

Kilargo ***intumescent*** seals are designed to 'intumesce' (*swell*) when subjected to heat - expanding to many times their original volume. This expansion provides a stable and resilient insulating barrier that restricts the spread of flames and hot smoke. These seals consist of an intumescent core material encapsulated in either a PVC casing or graphite skin which are fitted directly to door frames, door edges, or integrated into aluminium sections.

We also offer a range of ***combined fire and smoke*** seals that incorporate an intumescent core combined with smoke and acoustic fins. These seals are designed for all "phases" of smoke by providing a performance overlap, with the intumescent material being activated before the smoke-sealing fin reaches its degradation point.

Some door sealing solutions highlighted in this section are multi-functional, whereby one product offering, or a combination of products, provides efficient, cost-effective protection against fire, smoke, sound and energy leakage.

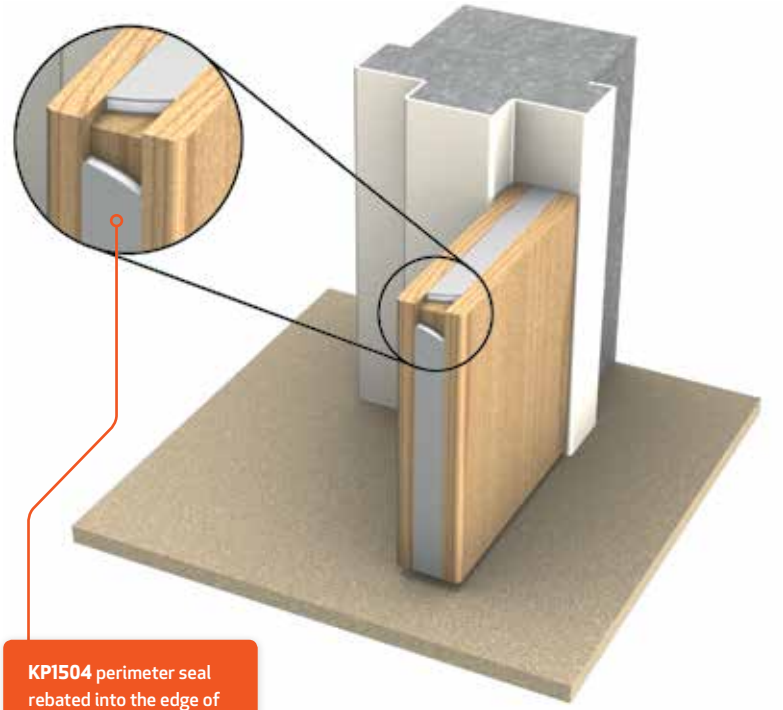
It is important to reiterate that Australian fire door designs are proprietary by nature. It is therefore a requirement that door seals and other items of essential hardware are tested in accordance with AS1530.4 – with each fire door manufacturer's door type – to ensure they do not compromise the assembly's established fire resistance level.

30 minute proprietary fire door in steel frame

KP1504

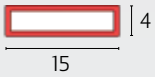
Application: Ideal 30 minute hot smoke perimeter seal where a 30 minute fire door may be required as part of a regulatory requirement or fire-engineered solution.

✓ *Please check with our Technical Department or the fire door manufacturer for relevant test approvals and suitability for door type.*



KP1504 perimeter seal rebated into the edge of the fire door leaf and held in place with aggressive self-adhesive backing tape. FOR INTERNAL USE ONLY.

Seal shown 'cut-away' for illustration purposes only



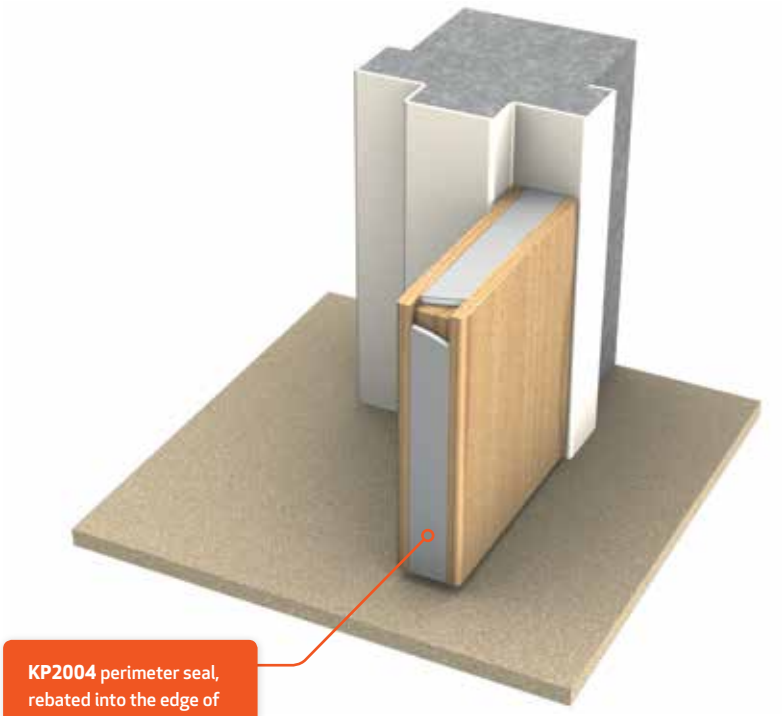
KP1504 – (15mm x 4mm) PVC encapsulated intumescent fire seal.

60 minute proprietary fire door in steel frame

KP2004

Application: Ideal for typical high-rise residential 1 hour unit entry door applications where an effective hot smoke perimeter seal is necessary, either as a regulatory requirement or fire-engineered solution.

✓ *Please check with our Technical Department or the fire door manufacturer for relevant test approvals and suitability for door type.*



KP2004 perimeter seal, rebated into the edge of the fire door leaf and held in place with aggressive self-adhesive backing tape. FOR INTERNAL USE ONLY.

Seal shown 'cut-away' for illustration purposes only

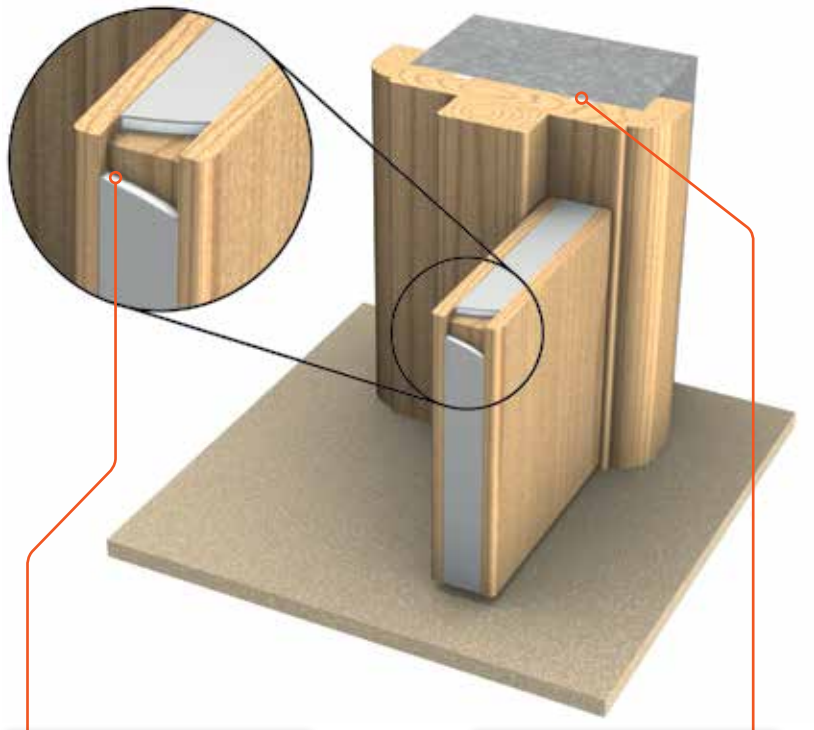
KP2004 – (20mm x 4mm) PVC encapsulated intumescent fire seal.

60 minute proprietary fire door in timber frame

KP2004 (with 2 x KP1004 behind timber frame)

Application: Ideal for typical commercial or high-rise residential applications (proprietary fire door in an approved timber door frame), where an effective hot smoke perimeter seal is necessary, either as a regulatory requirement or fire-engineered solution.

✓ *Please check with our Technical Department or the fire door manufacturer for relevant test approvals and suitability for door type.*



KP2004 perimeter seal, rebated into the edge of the fire door leaf and held in place with aggressive self-adhesive backing tape.

Seal shown 'cut-away' for illustration purposes only

Shown with 2 x layers of KP1004 fire seal rebated into the back of the timber frame, providing protection for the gap between the frame and wall. Kilargo intumescent fire rated sealant may also be used as an alternative fire resistant material. FOR INTERNAL USE ONLY.

KP2004 – (20mm x 4mm) PVC encapsulated intumescent fire seal.

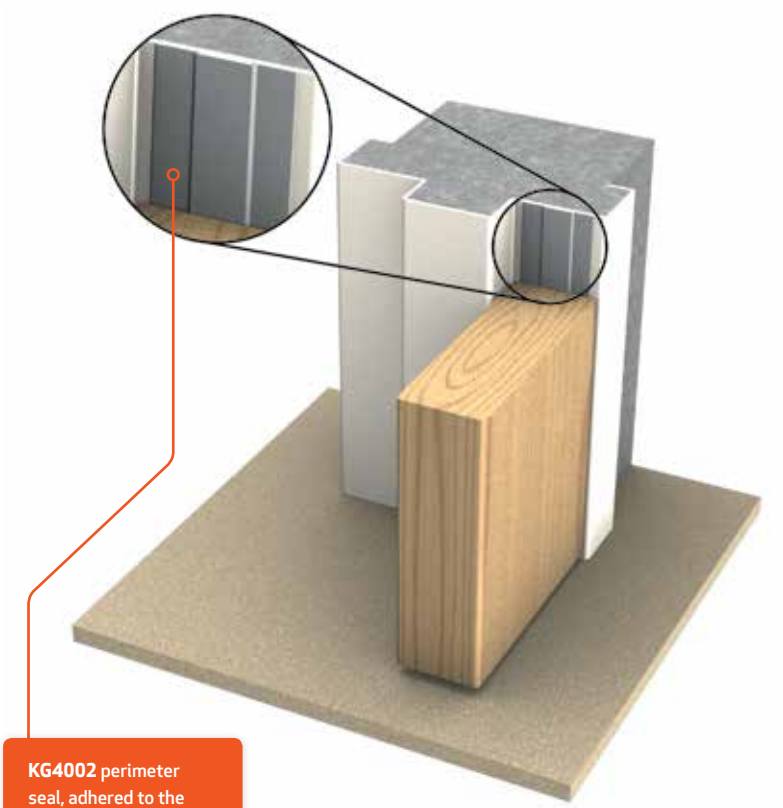
120 minute proprietary fire door in steel frame

KG4002

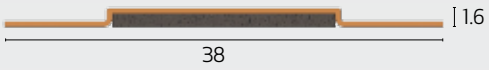
Application: Ideal for typical commercial applications such as stairwells and corridors in public buildings, hospitals, schools and shopping centres, where an effective hot smoke perimeter seal is necessary with up to 2 hours fire rating. This intumescent sealing element may form part of a regulatory requirement or fire-engineered solution.

*Also approved as a fire door perimeter upgrade seal. This seal has been tested to successfully upgrade proprietary fire doors with non-compliant perimeter gaps. (see PP 50)

✓ *Please check with our Technical Department or the fire door manufacturer for relevant test approvals and suitability for door type.*



KG4002 perimeter seal, adhered to the steel door frame rebate with aggressive self-adhesive backing tape. (This seal may be painted over.)



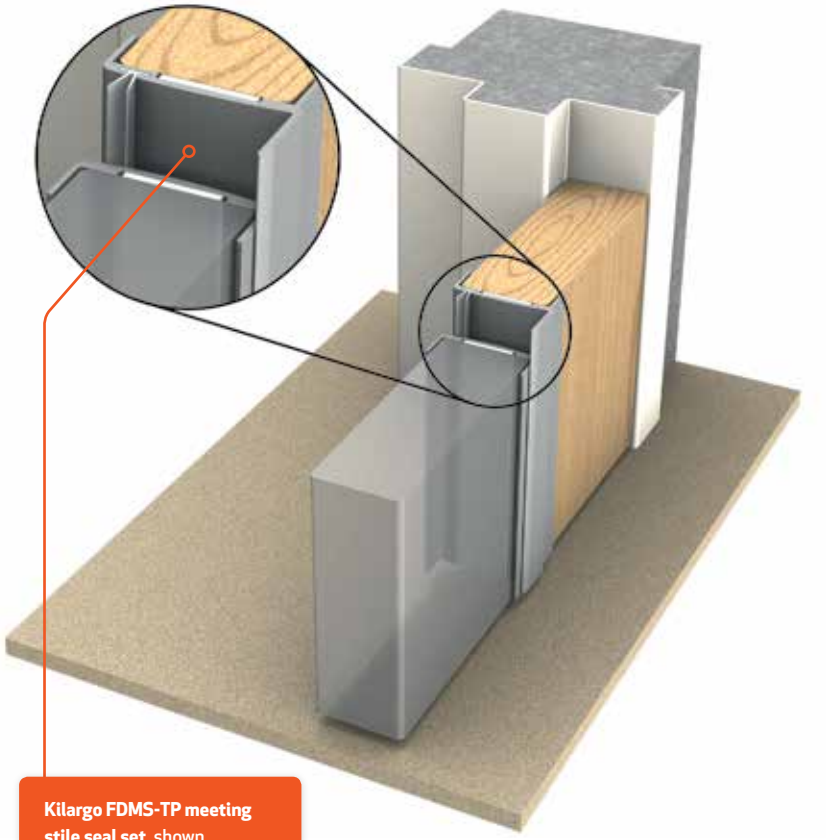
KG4002 – (38mm x 1.6mm) PVC encapsulated intumescent fire seal.

120 minute proprietary fire door pair in steel frame – single action

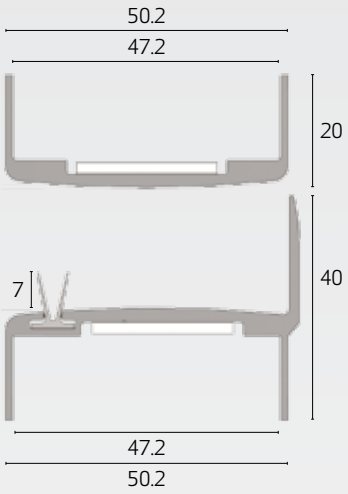
FDMS-TP

Application: The FDMS-TP aluminium meeting stile seal set is suitable for proprietary **single-action** fire door pair assemblies (of nominal 47mm thickness). The seal set incorporates an intumescent strip recessed behind each aluminium section. The 'T-Section' also incorporates an integral smoke & acoustic fin.

- ✓ *This sealing solution is tested on proprietary fire door assemblies. Differing proprietary assemblies may require additional essential seals (as per their tested prototypes).*
- ✓ *Please check with our Technical Department or your relevant fire door manufacturer for any additional sealing requirements for this system.*



Kilargo FDMS-TP meeting stile seal set, shown installed onto a pair of single-action fire doors. (NB. A sequence selector may be required – please check with hardware installer).



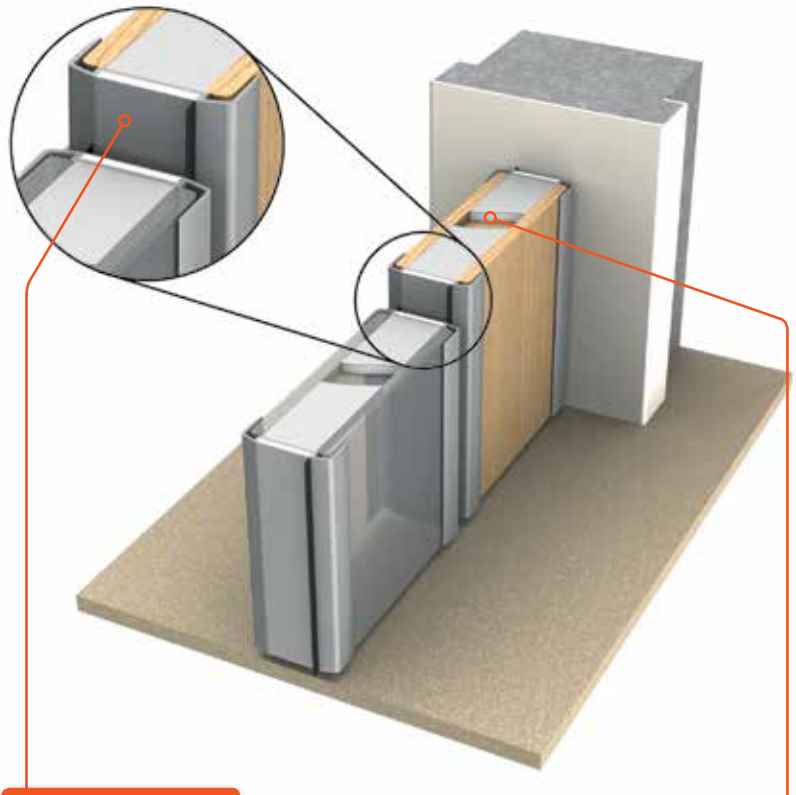
FDMS-TP meeting stile set – Aluminium meeting stile seal set for proprietary single-action fire door assemblies.

120 minute proprietary fire door pair in steel frame – double action

FDMS-BB

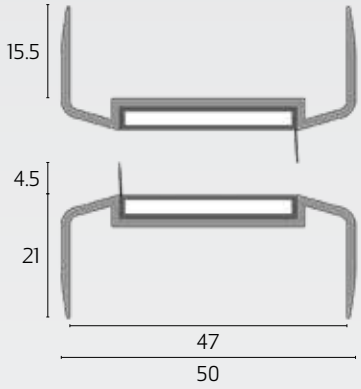
Application: The FDMS-BB aluminium meeting stile seal set is suitable for proprietary **double-action** fire door assemblies (of nominal 47mm thickness). Each seal length incorporates a PVC encased intumescent seal with integral smoke & acoustic fin.

- ✓ *This sealing solution is tested on proprietary fire door assemblies. Differing proprietary assemblies may require additional essential seals (as per their tested prototypes).*
- ✓ *Please check with our Technical Department or your relevant fire door manufacturer for any additional sealing requirements for this system.*



Kilargo FDMS-BB meeting stile seal set, shown installed onto a pair of double-action fire doors. Also shown with FDMS-B lengths fitted to the pivot stiles.

Shown with Kilargo KP3006 proprietary intumescent fire seals rebated into the head of each fire door leaf - as per the proprietary tested system. Seal shown 'cut-away' for illustration purposes only.



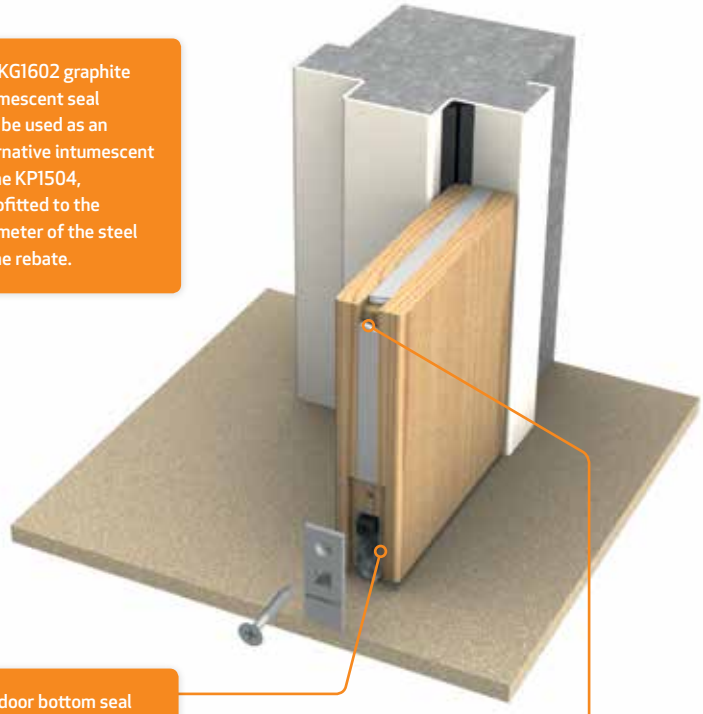
FDMS-BB meeting stile set – Aluminium meeting stile seal set for proprietary double-action fire door assemblies.

30 minute proprietary fire door in steel frame

KP1504, IS1212, IS8010si

Application: Ideal 30 minute fire and smoke sealing solution where a 30 minute fire door may be required as part of a regulatory requirement or fire-engineered solution.

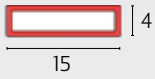
✓ *Please check with our Technical Department or the fire door manufacturer for relevant test approvals and suitability for door type.*



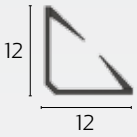
The KG1602 graphite intumescent seal may be used as an alternative intumescent to the KP1504, retrofitted to the perimeter of the steel frame rebate.

The door bottom seal is shown with the operating button on the visible side to highlight illustration. When installing, the operating button would be located on the hinge side of the door for activation against the door frame rebate.

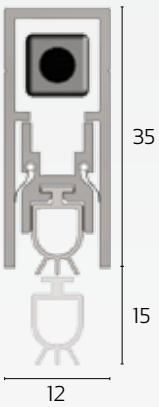
Seal shown 'cut-away' for illustration purposes only



KP1504 perimeter seal – (15mm x 4mm)
PVC encapsulated intumescent fire seal, rebated into the edge of the fire door leaf and held in place with aggressive self-adhesive backing tape.
FOR INTERNAL USE ONLY.



IS1212 perimeter seal – Retrofit self-adhesive seal with proven smoke & acoustic performance.



IS8010si automatic door bottom seal – Medium duty, fully mortised automatic door bottom seal also with proven smoke & acoustic performance.

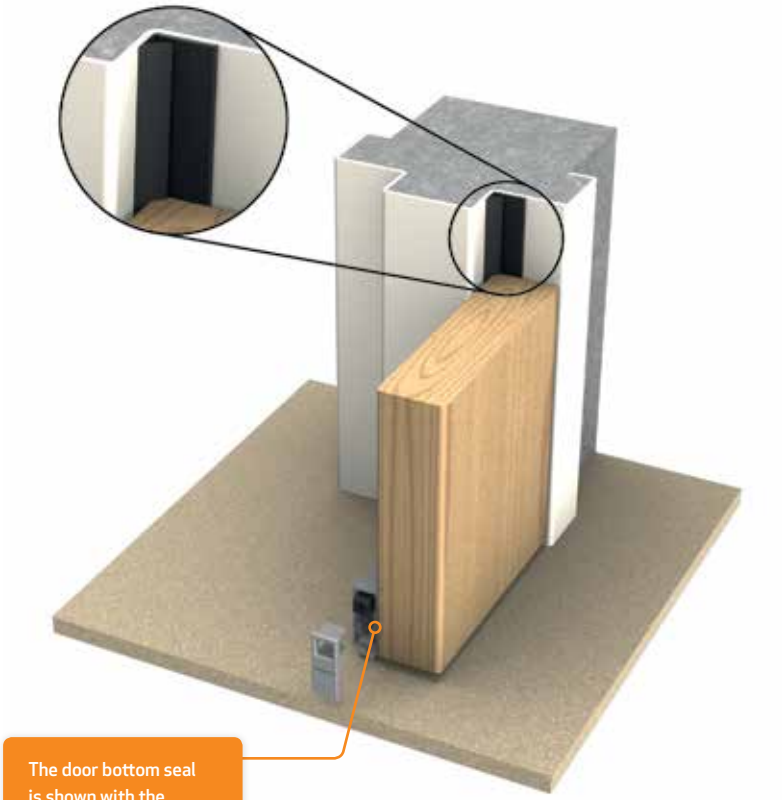
60 minute proprietary fire door in steel frame

KG1612BW, IS8011si

Application: A suitable solution for typical 1 hour fire-rated unit entry door applications where an effective fire and smoke sealing system is necessary - either as a regulatory requirement or as a fire-engineered solution.

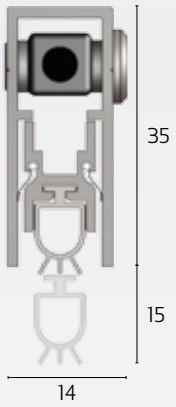
This retrofit sealing system can be easily installed without having to remove the door from the frame.

✓ *Please check with our Technical Department or the fire door manufacturer for relevant test approvals and suitability for door type.*



The door bottom seal is shown with the operating button on the visible side to highlight illustration. When installing, the operating button would be located on the hinge side of the door for activation against the door frame stop.

KG1612BW perimeter seal – (16mm x 12mm) flexible graphite based intumescent fire, smoke & acoustic seal. This seal has a single elastomeric blade on one edge and is supplied with aggressive self-adhesive backing tape.



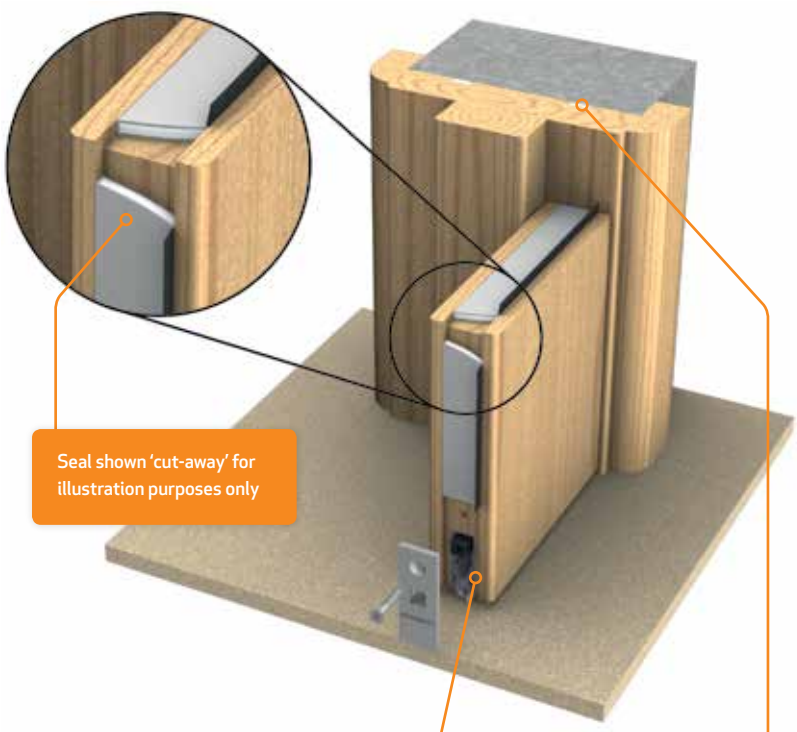
IS8011si automatic door bottom seal – Medium duty, surface mounted (or semi-rebated) automatic door bottom seal with proven smoke & acoustic performance.

60 minute proprietary fire door in timber frame

KP2004AS, IS8010si

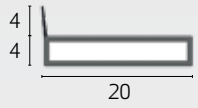
Application: A suitable solution for typical 1 hour fire-rated unit entry door applications (proprietary fire door in an approved timber door frame) where an effective fire and smoke sealing system is necessary - either as a regulatory requirement or as a fire-engineered solution.

✓ *Please check with our Technical Department or the fire door manufacturer for relevant test approvals and suitability for door type.*

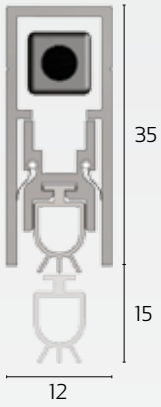


The door bottom seal is shown with the operating button on the visible side to highlight illustration. When installing, the operating button would be located on the hinge side of the door for activation against the door frame rebate.

Shown with 2 x layers of KP1004 fire seal rebated into the back of the timber frame, providing protection for the gap between the frame and wall. Kilargo intumescent fire rated sealant may also be used as an alternative fire resistant material.



KP2004AS perimeter seal – (20mm x 4mm)
PVC encapsulated intumescent fire seal with asymmetrical elastomeric offset fin, rebated into the edge of the fire door leaf and held in place with aggressive self-adhesive backing tape.
FOR INTERNAL USE ONLY.



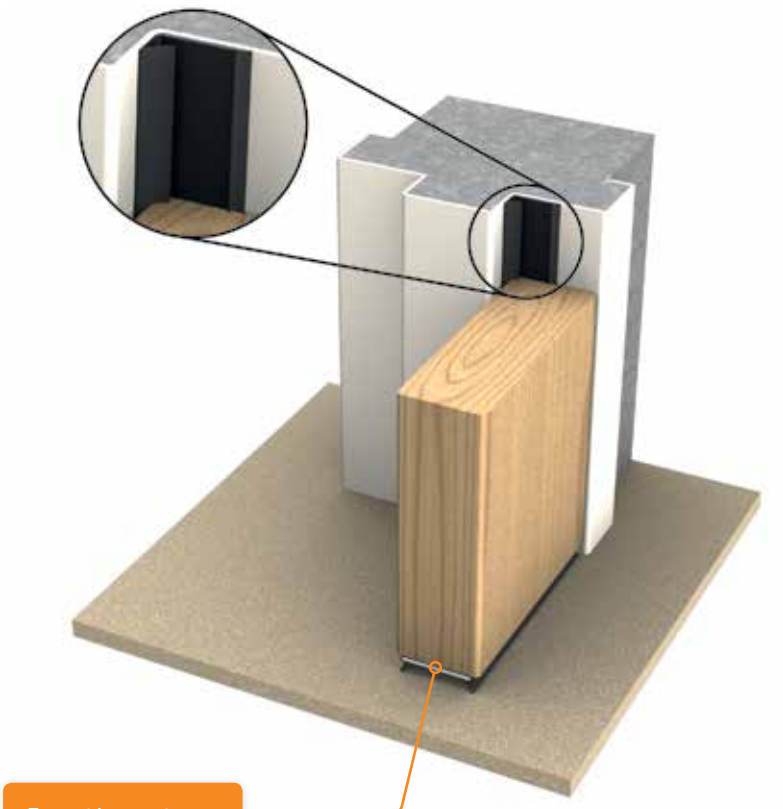
IS8010si automatic door bottom seal – Medium duty, fully mortised automatic door bottom seal also with proven smoke & acoustic performance.

120 minute proprietary fire door in steel frame

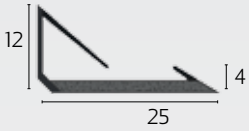
KG2512BW, KP4204TF

Application: An ideal retrofit solution for typical commercial applications such as stairwells and corridors in public buildings, hospitals, schools and shopping centres, and even multi-residential apartments for effective fire, smoke and acoustic containment. This sealing system has been tested for up to 2 hours fire rating on proprietary doors.

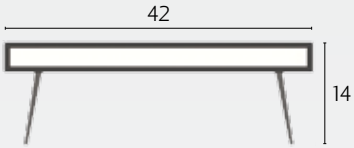
✓ *Please check with our Technical Department or the fire door manufacturer for relevant test approvals and suitability for door type.*



To provide an optimum sealing surface for the sweep action door bottom seal, an IS4010 threshold plate could be utilised here.



KG2512BW perimeter seal – High performance retrofit, intumescent fire, smoke & acoustic seal. This seal has two elastomeric sealing fins, catering for excessive door movement across varying temperatures.



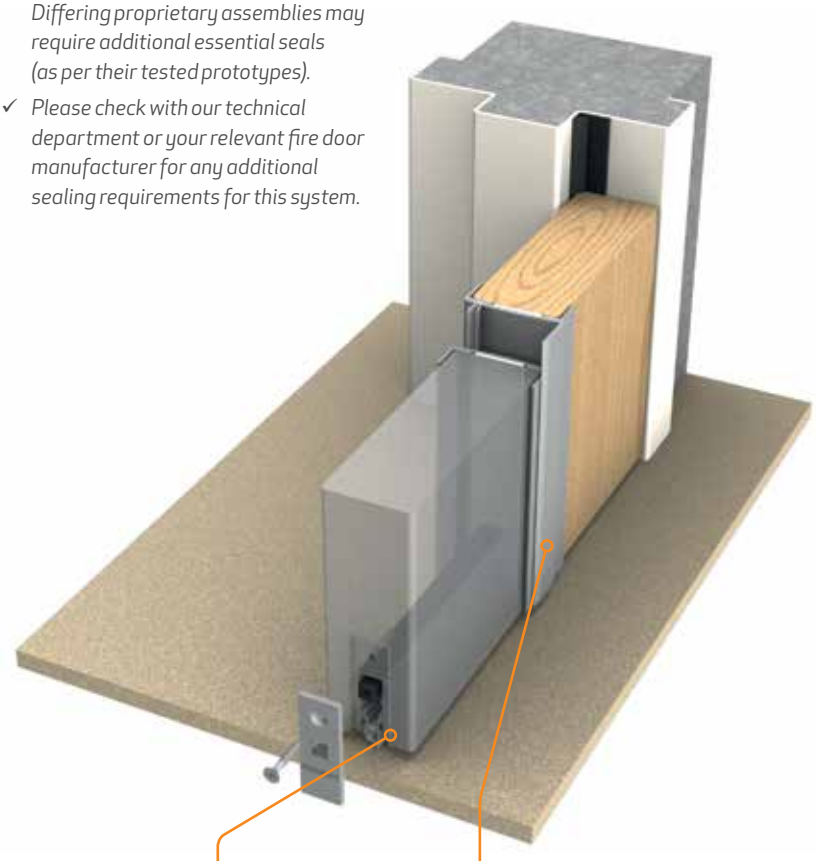
KP4204TF door bottom seal – Combined intumescent fire & smoke seal. Easily retrofit to the underside of the door bottom providing excellent smoke & acoustic properties.

120 minute proprietary fire door pair in steel frame – single action

KG1612BW, FDMS-TP, IS8010si

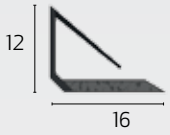
Application: A suitable solution for a proprietary pair of single-action, 2 hour fire rated doors. This sealing system will provide effective fire and smoke containment as deemed necessary - either as a regulatory requirement or as a fire-engineered solution.

- ✓ *This sealing solution is tested on proprietary fire door assemblies. Differing proprietary assemblies may require additional essential seals (as per their tested prototypes).*
- ✓ *Please check with our technical department or your relevant fire door manufacturer for any additional sealing requirements for this system.*

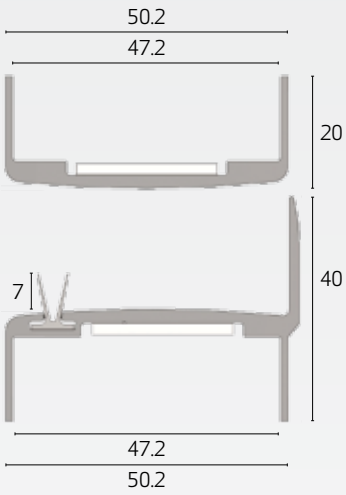


The door bottom seal is shown with the operating button visible to highlight illustration. When installing, the operating button would activate against the door frame rebate.

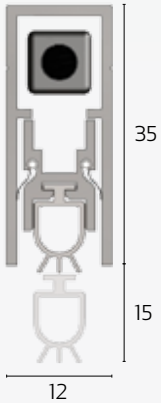
Kilargo FDMS-TP meeting stile seal set, shown installed onto a pair of single-action fire doors . (NB. A sequence selector may be required – please check with hardware installer).



KG1612BW perimeter seal – (16mm x 12mm) flexible graphite based intumescent fire, smoke & acoustic seal. This seal has a single elastomeric blade on one edge and is supplied with aggressive self-adhesive backing tape.



FDMS-TP meeting stile seal – Aluminium meeting stile seal set for proprietary single action fire door assemblies (of nominal 47mm thickness).



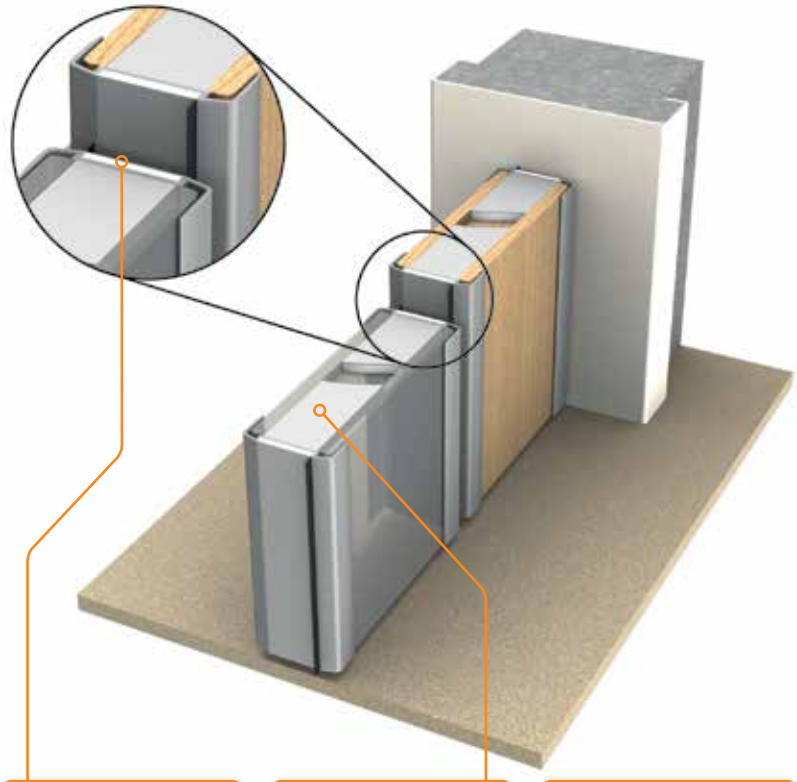
IS8010si automatic door bottom seal – Medium duty, fully mortised automatic door bottom seal also with proven smoke & acoustic performance.

120 minute proprietary fire door pair in steel frame – double action

FDMS-B, FDMS-BB, KP3006

Application: A suitable solution for a proprietary pair of **double-action**, 2 hour fire rated doors. This sealing system will provide effective fire and smoke containment as per the tested prototype.

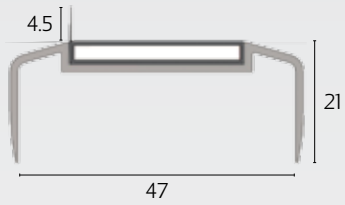
- ✓ *This sealing solution is tested on proprietary fire door assemblies. Differing proprietary assemblies may require additional essential seals (as per their tested prototypes).*
- ✓ *Please check with our Technical Department or your relevant fire door manufacturer for any additional sealing requirements for this system.*



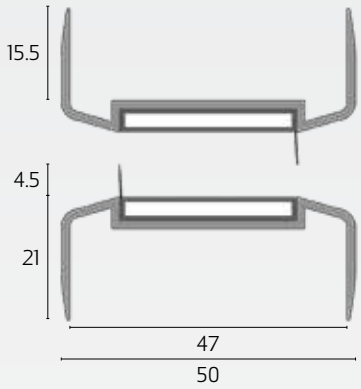
Kilargo FDMS-BB meeting stile seal set, shown installed onto a pair of double-action fire doors. Also shown with FDMS-B lengths fitted to the pivot stiles.

Kilargo KP3006 proprietary intumescent fire seal rebated into the head of each fire door leaf - as per the proprietary tested system. Seal shown 'cut-away' for illustration purposes only.

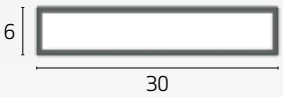
For this system to provide maximum ambient & medium temperature smoke performance, the KP3006SS version should be installed across the head of each door leaf. A suitable sweep-action door bottom seal should also be installed to each leaf, such as the KP4204TF intumescent fire & smoke door bottom seal.



FDMS-B bullnose meeting stile section – Aluminium meeting stile seal section suitable for the pivot stiles of proprietary double action fire door assemblies (of nominal 47mm thickness).



FDMS-BB bullnose meeting stile set – Aluminium meeting stile seal set suitable for the meeting stiles of proprietary double action fire door assemblies (of nominal 47mm thickness).



KP3006 intumescent seal – Proprietary (30mm x 6mm) PVC encapsulated intumescent fire seal, rebated into the edge of the fire door leaves across the head, and held in place with aggressive self-adhesive backing tape.

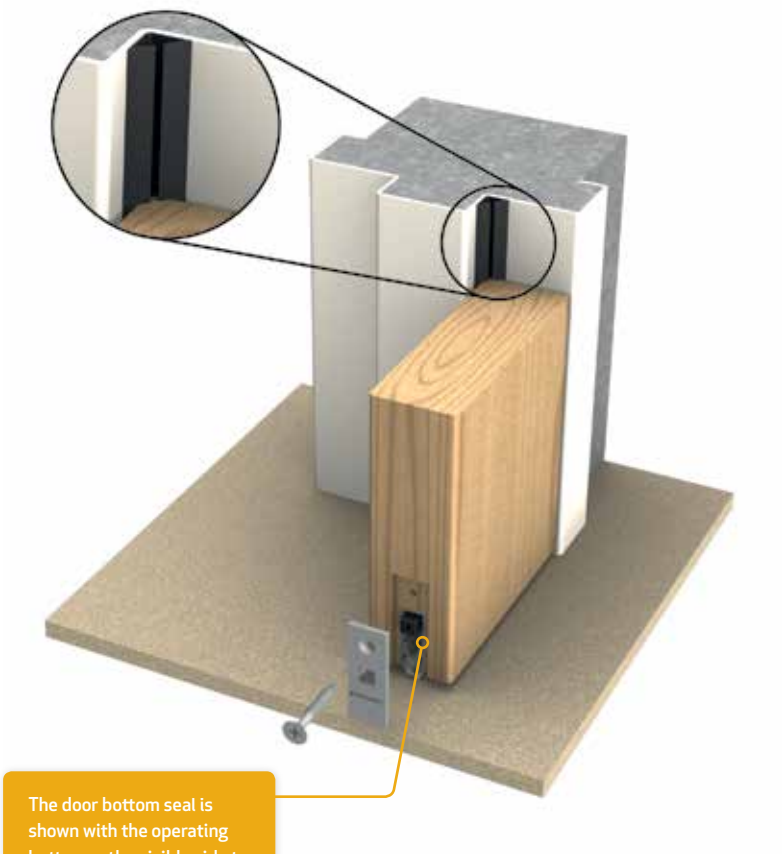
Up to 120 minute proprietary fire door in steel frame

IS1212, IS8010si

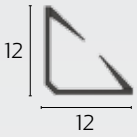
Application: Proven smoke and acoustic sealing combination tested on proprietary fire doors with up to 2 hours fire resistance.

This system is commonly utilised for unit entry doors for residential apartments, where no sealing components are visible from either side of the door.

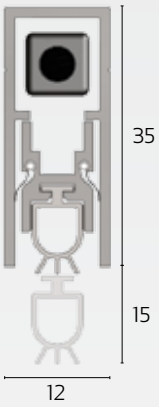
✓ *Please check with our Technical Department or your relevant fire door manufacturer for any additional sealing requirements for this system.*



The door bottom seal is shown with the operating button on the visible side to highlight illustration. When installing, the operating button would be located on the hinge side of the door for activation against the door frame rebate.



IS1212 perimeter seal – Retrofit self-adhesive seal with proven smoke & acoustic performance.



IS8010si automatic door bottom seal – Medium duty, fully mortised automatic door bottom seal also with proven smoke & acoustic performance.

Up to 120 minute proprietary fire door in steel frame

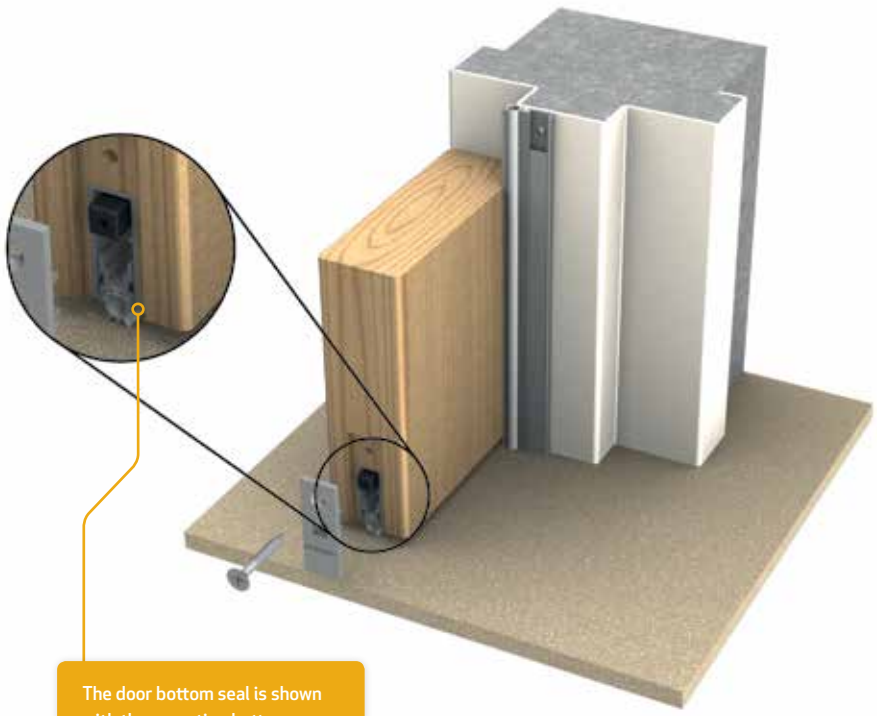
IS7025si, IS8010si

Application: Effective smoke and acoustic sealing combination tested on proprietary fire doors with up to 2 hours fire resistance.

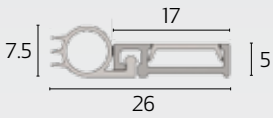
This system provides another common alternative sealing solution for unit entry doors on residential apartments.

The IS7025si seal provides a compression seal for the door to close against, yet is very 'slim-line' when attached to the door stop and does not encroach on the door opening space.

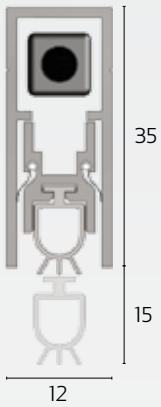
✓ *Please check with our Technical Department or the fire door manufacturer for relevant test approvals and suitability for door type.*



The door bottom seal is shown with the operating button on the visible side to highlight illustration. When installing, the operating button would be located on the hinge side of the door for activation against the door frame rebate.



IS7025si perimeter seal – Slimline, stop-mounted smoke & acoustic seal featuring a durable silicone compression bulb.



IS8010si automatic door bottom seal – Medium duty, fully mortised automatic door bottom seal also with proven smoke & acoustic performance.

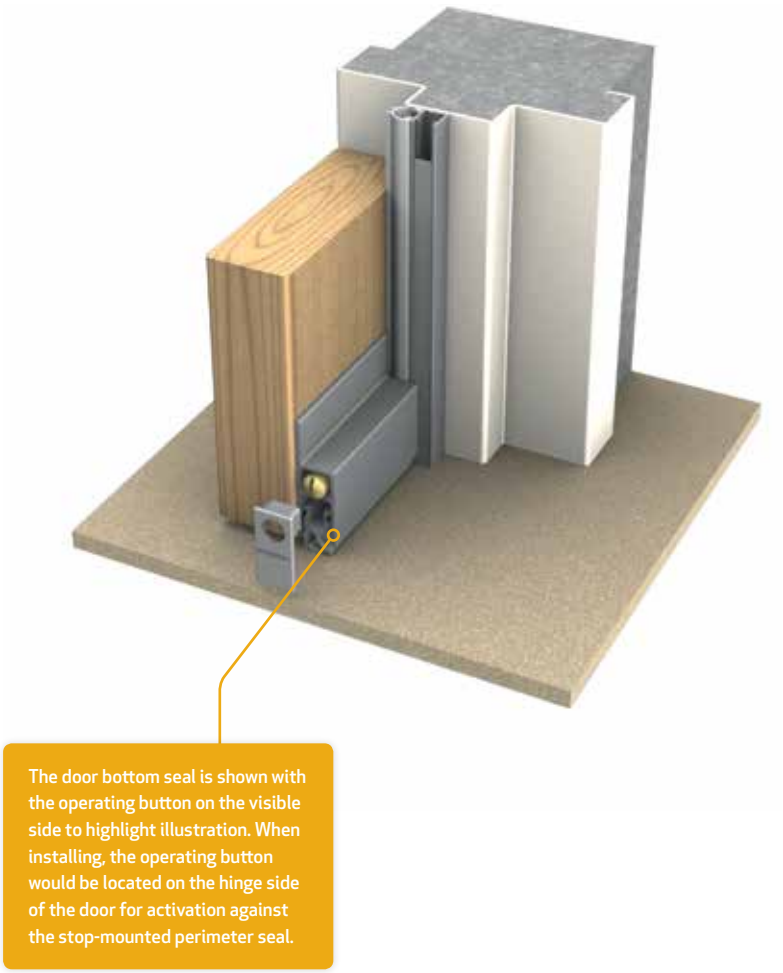
Up to 120 minute proprietary fire door in steel frame

IS7080si, IS8090si

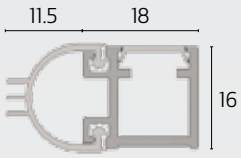
Application: This sealing combination also provides an effective, medium to heavy duty, smoke and acoustic sealing solution, tested on proprietary fire doors with up to 2 hours fire resistance.

This system can be utilised for more commercial applications such as hospitals, school classrooms, plant rooms, and stairwells.

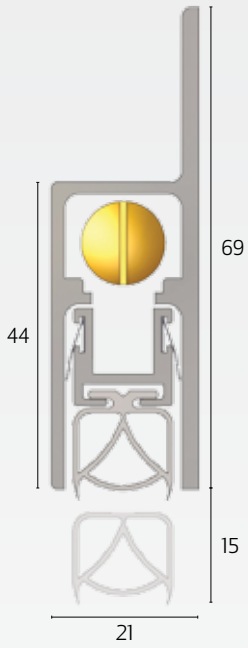
✓ *Please check with our Technical Department or the fire door manufacturer for relevant test approvals and suitability for door type.*



The door bottom seal is shown with the operating button on the visible side to highlight illustration. When installing, the operating button would be located on the hinge side of the door for activation against the stop-mounted perimeter seal.



IS7080si perimeter seal – Compact, stop-mounted smoke & acoustic seal with durable silicone compression gasket. Tested on proprietary fire door assemblies mounted on a 25mm frame stop.



IS8090si automatic door bottom seal – Heavy duty, surface-mounted automatic door bottom seal also with proven smoke & acoustic performance.

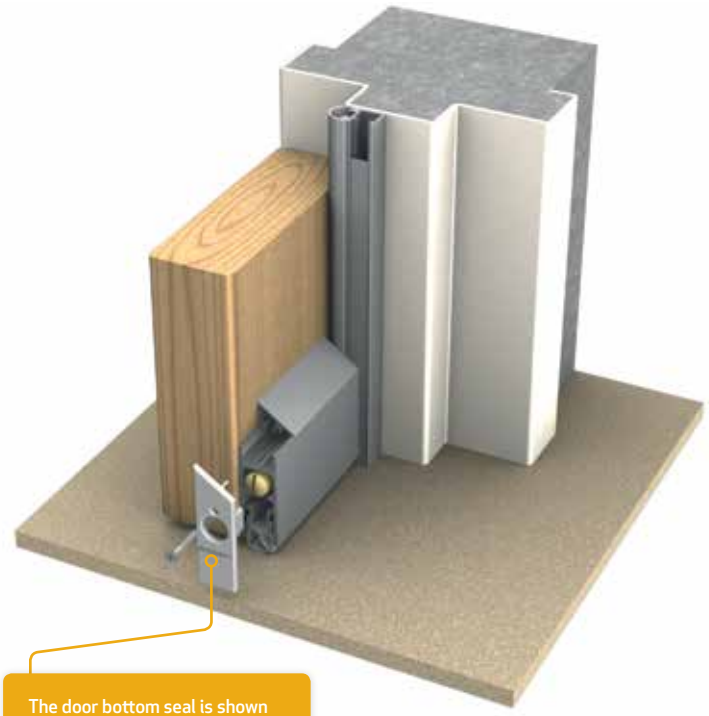
Up to 120 minute proprietary fire door in steel frame

IS7085si, IS8020si

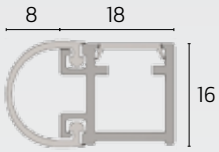
Application: This sealing combination also provides an effective, medium to heavy duty, smoke and acoustic sealing solution, tested on proprietary fire doors with up to 2 hours fire resistance.

This system can be utilised for more commercial applications such as hospitals, child-care, nursing homes, and school classrooms, where easy cleaning and limiting the movement of airborne contaminates is a pre-requisite.

- ✓ *The silicone gaskets of this fire door smoke & acoustic sealing system can also be supplied with built-in antimicrobial protection, providing superior infection control. Please contact Kilargo for further information.*
- ✓ *Please check with our Technical Department or the fire door manufacturer for relevant test approvals and suitability for door type.*

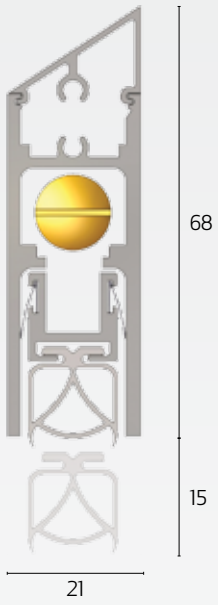


The door bottom seal is shown with the operating button on the visible side to highlight illustration. When installing, the operating button would be located on the hinge side of the door for activation against the stop-mounted perimeter seal.



IS7085si perimeter seal – Aesthetic, compact, stop-mounted smoke & acoustic seal specifically designed for 'clean-room' applications.

Tested on proprietary fire door assemblies mounted on a 25mm frame stop.



IS8020si automatic door bottom seal – Heavy duty, surface-mounted automatic door bottom seal also with proven smoke & acoustic performance. The reversible aluminium top cover plate conceals the fixings and provides an aesthetic, architectural design.

Up to 120 minute proprietary fire door in steel frame

IS7087si, IS8091si

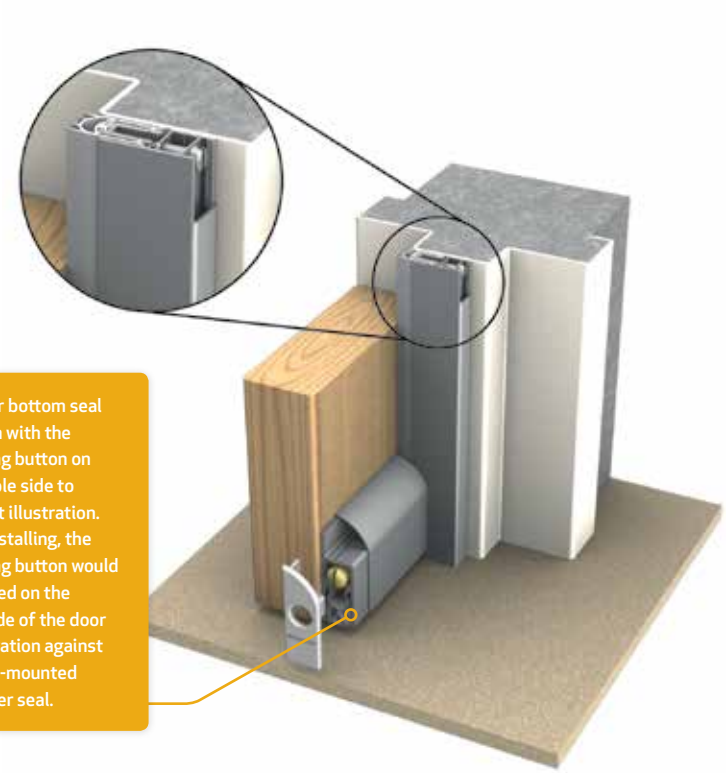
Application: This sealing combination also provides an effective, medium to heavy duty, smoke and acoustic sealing solution, tested on proprietary fire doors with up to 2 hours fire resistance.

This system can also be utilised as an alternative for more commercial applications such as hospitals, aged-care, school classrooms, corridors and stairwells, etc.

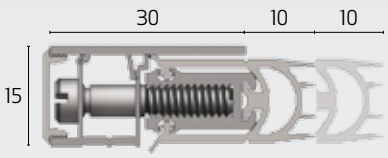
The overriding features of this sealing solution are:

- The adjustable IS7087si perimeter seal, enabling a continuous compression against the door surface even under conditions favourable to door movement.
- The curved aesthetic cover plate on the IS8091si automatic door bottom seal. This helps prevent dust build-up, providing a neat solution for hospital and clean-room applications.

✓ *Please check with our Technical Department or the fire door manufacturer for relevant test approvals and suitability for door type.*

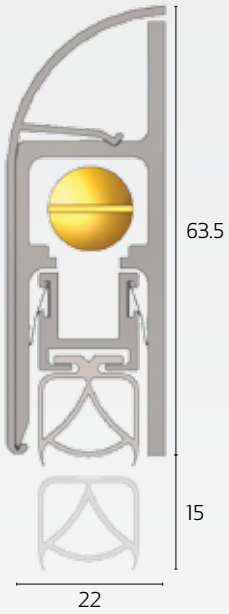


The door bottom seal is shown with the operating button on the visible side to highlight illustration. When installing, the operating button would be located on the hinge side of the door for activation against the stop-mounted perimeter seal.



IS7087si perimeter seal – Adjustable perimeter seal designed for high smoke & acoustic performance. This seal has an aesthetic, tamper-proof aluminium cover plate, concealing fixing screws.

Tested on proprietary fire door assemblies mounted on a 25mm frame stop.



IS8091si automatic door bottom seal – Heavy duty, face-fixed automatic door bottom seal with aesthetic architectural aluminium cover plate. This seal also has proven smoke & acoustic performance properties.

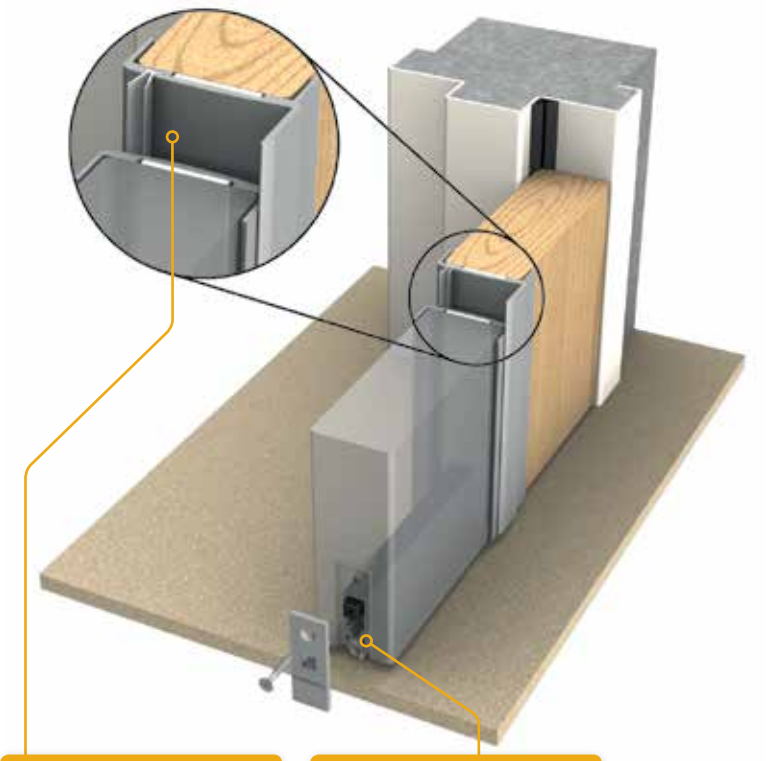
Up to 120 minute proprietary fire door pair in a steel frame – single action

IS1212, FDMS-TP, IS8010si

Application: A proven smoke and acoustic sealing solution for a proprietary pair of single-action fire doors with up to 2 hours fire resistance.

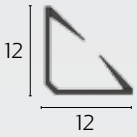
This system is most commonly used for double room entry doors in hotels; corridor compartment doors in hospitals and nursing homes; plus where separation doors are required in public buildings.

- ✓ *This sealing solution is tested on proprietary fire door assemblies. Differing proprietary assemblies may require additional essential seals (as per their tested prototypes).*
- ✓ *Please check with our technical department or your relevant fire door manufacturer for any additional sealing requirements for this system.*

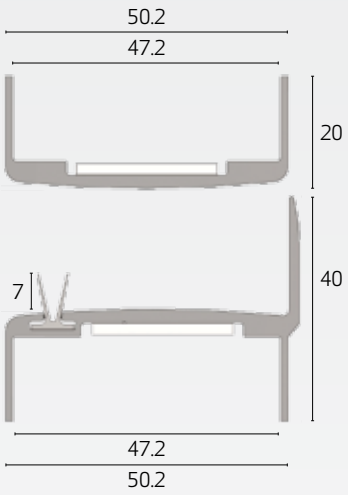


Kilargo FDMS-TP meeting stile seal set, shown installed onto a pair of single-action fire doors. (NB. A sequence selector may be required – please check with hardware installer).

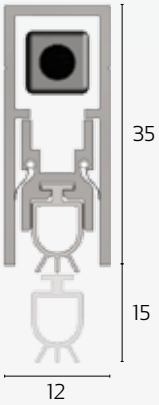
The door bottom seal is shown with the operating button on the visible side to highlight illustration. When installing, the operating button would activate against the door frame rebate.



IS1212 perimeter seal – Retrofit self-adhesive seal with proven smoke & acoustic performance.



FDMS-TP meeting stile seal – Aluminium meeting stile seal set for proprietary single action fire door assemblies (of nominal 47mm thickness).



IS8010si automatic door bottom seal – Medium duty, fully mortised automatic door bottom seal also with proven smoke & acoustic performance.

The Kilargo range of upgrade solutions for non-compliant fire resistant doors can overcome frustrating and expensive problems for building owners, building contractors and essential service providers alike. In-situ fire resistant doors that would otherwise need new and expensive replacements, can now be salvaged.

This range includes:

- Seals that allow doors with excessive perimeter gaps (up to 6mm) to be easily upgraded
- Seals that allow the use of slim-line, non-standard fire door frame stops
- Seals that allow doors with excessive door bottom gaps (from 10mm up to 60mm) to be easily upgraded

These solutions provide fire ratings up to and including 2 hours and are approved for use on most proprietary fire doors, including:

- 'Mini' fire doors (nominal 35mm thickness)
- 'Maxi' fire doors (nominal 45mm thickness)

All products have been fire tested to AS1530.4 and comply with AS1905.1.

Regulatory Requirements

The use of fire door assemblies within buildings is regulated by the Building Code of Australia which references the Australian Standard AS1905.1: 2005 Components for the protection of opening in fire resistant walls. Part 1: Fire resistant doorsets.

This standard mandates and describes the critical aspects of a fire door assembly including its fire resistance level, attributes and characteristics of critical components, installation of the entire fire door assembly as well as identification and labelling requirements. Section 5.5 of AS1905.1 details the allowable clearances around side hung fire doors assemblies:

5.5 Clearances

5.5.1 General

The clearance dimensions required for fire-resistant doorsets shall be in accordance with this Clause unless greater clearance dimensions have been demonstrated on a tested specimen.

5.5.2 Sill and Door Finish

Clearances between the bottom of all door leafs and the floor shall be as follows.

a) Between the leaf and the top of any floor covering not less than 3mm and not more than 10mm.

b) Between the leaf and the top of the non-combustible sill

   i. not more than 10mm where there is no combustible floor covering; and

   ii. not more than 25mm where there is a combustible floor covering present.

5.5.3 Side-Hung Door, Leaf-to-Frame

Door leaves side-hung into rebated frames shall be installed to swing clear of the doorframe and shall have mean clearances, in the closed position, between the leaf and the head, and between the leaf and each side, of not more than 3mm.

Keeping within these tolerances sounds uncomplicated but in reality this can be very difficult due to numerous site conditions, out of square frame installations, building movement, variance in floor levels and finishes etc.

It is imperative that fire resistant door assemblies function correctly, and regular inspection and maintenance plays a crucial part in achieving this. Australian Standard **AS1851 Routine service of fire protection systems and equipment,** provides concise guidance on inspection, test, maintenance, survey and reporting requirements for hinged fire resistant door assemblies as well as providing recommendations on the frequency of these checks and inspections.

Where fire door clearances are found to be outside of the prescribed tolerances highlighted in AS1905 Part 1, Kilargo can offer the following range of performance tested upgrade solutions for most proprietary fire door assemblies.

Up to 120 minute proprietary fire door in steel frame

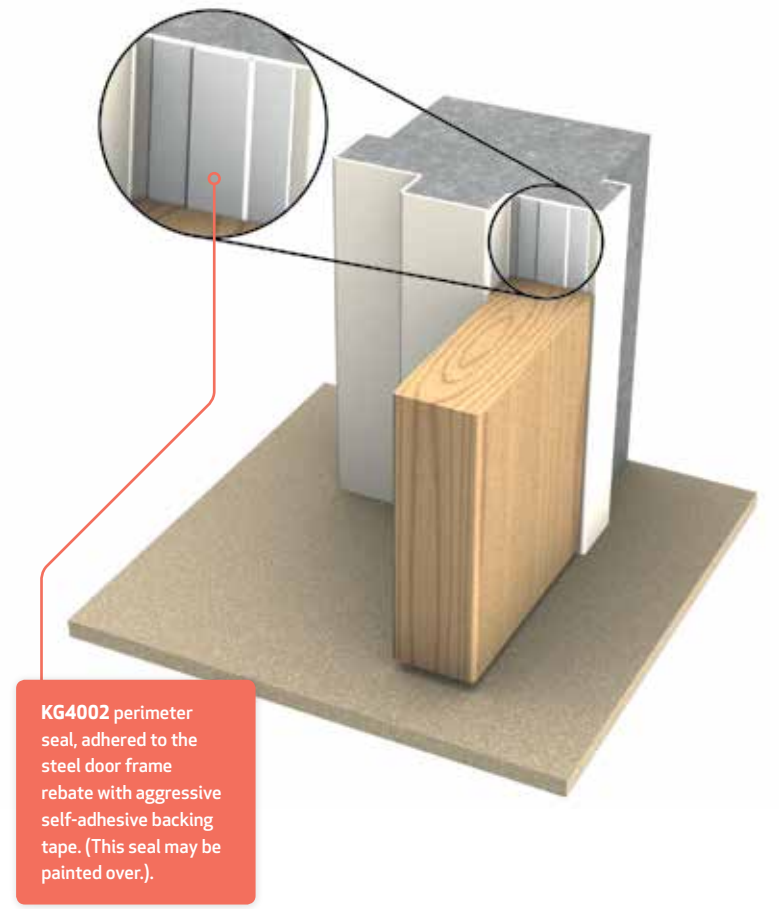
KG4002

Application: Approved as a fire door perimeter upgrade seal, allowing proprietary fire door assemblies with non-compliant perimeter gaps (where the clearance exceeds the 3mm as specified in AS1905 Part 1) to be upgraded.

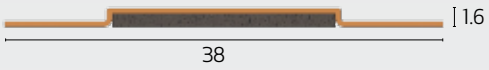
The KG4002 caters for door perimeter gaps of up to, and including, 6mm.

This retrofit seal is simply applied directly to the frame and secured using the aggressive self-adhesive backing tape.

✓ *Please check with our Technical Department or the Fire Door Manufacturer for relevant test approvals and suitability for door type.*



KG4002 perimeter seal, adhered to the steel door frame rebate with aggressive self-adhesive backing tape. (This seal may be painted over.).



KG4002 – (38mm x 1.6mm) PVC encapsulated intumescent fire seal for upgrading proprietary fire doors with excessive, non-compliant perimeter gaps.

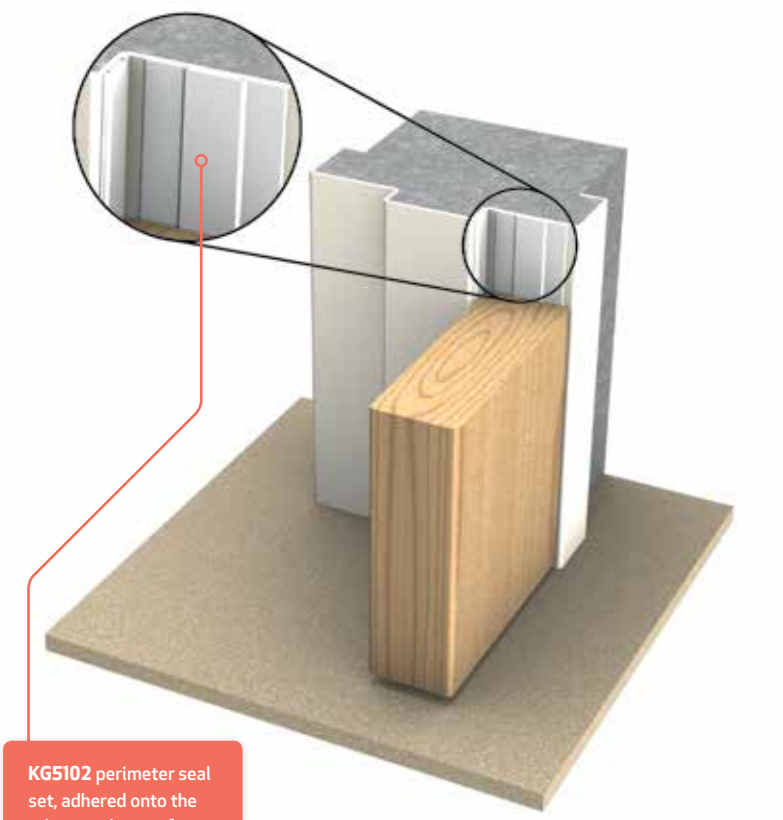
Up to 120 minute proprietary fire door in steel frame

KG5102

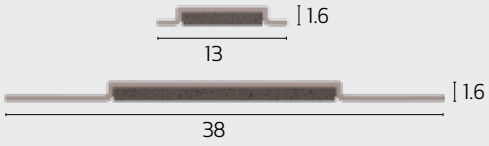
Application: Approved as a fire door perimeter upgrade seal, allowing for a cost-effective and clean build-up of non-rated, back-filled steel frames with only 15mm stops, in lieu of the conventional 25mm stops required for fire doors.

This retrofit seal is simply applied directly to the frame and stop rebates, secured in place using the aggressive self-adhesive backing tape.

✓ *Please check with our Technical Department or the Fire Door Manufacturer for relevant test approvals and suitability for door type.*



KG5102 perimeter seal set, adhered onto the rebate and stop of a steel frame with only 15mm stops. (This seal may be painted over).



KP5102 perimeter seal set – (38mm x 1.6mm + 13mm x 1.6mm) PVC encapsulated intumescent fire seal set, adhered to the steel frame rebate with aggressive self-adhesive backing tape.

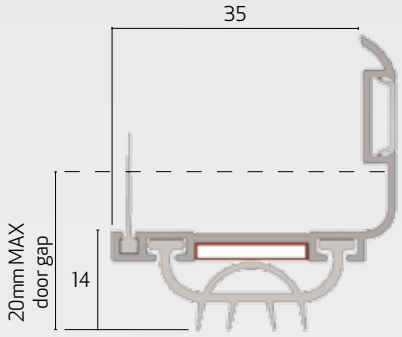
Up to 120 minute proprietary fire door in steel frame

FDBU20 Door Bottom Upgrade Seal

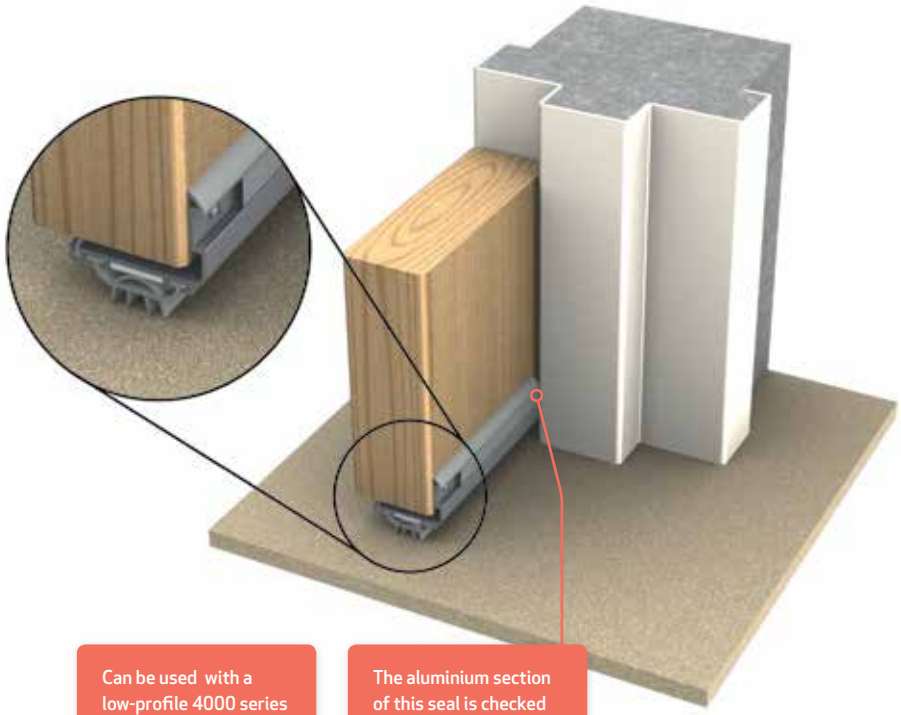
Application: The FDBU20 door bottom seal allows upgrading of both nominal 35mm thick (mini) fire doors and 45 mm thick (maxi) fire doors (where door bottom gaps exceed the allowable 10mm, as per AS1905 Part 1),and can accommodate a door bottom clearance of up to and including a maximum of 20mm.

This seal can be easily installed without removing the door leaf.

✓ *Please check with our Technical Department or the Fire Door Manufacturer for relevant test approvals and suitability for door type.*



FDBU20 fire door bottom upgrade seal – The FDBU20 door bottom seal is suitable for sealing gaps up to a maximum of 20mm under nom. 35mm & 45mm proprietary fire doors.



Can be used with a low-profile 4000 series threshold plate for uneven surfaces.

The aluminium section of this seal is checked around the steel frame stop, allowing the seal to remain continuous across the entire door width.

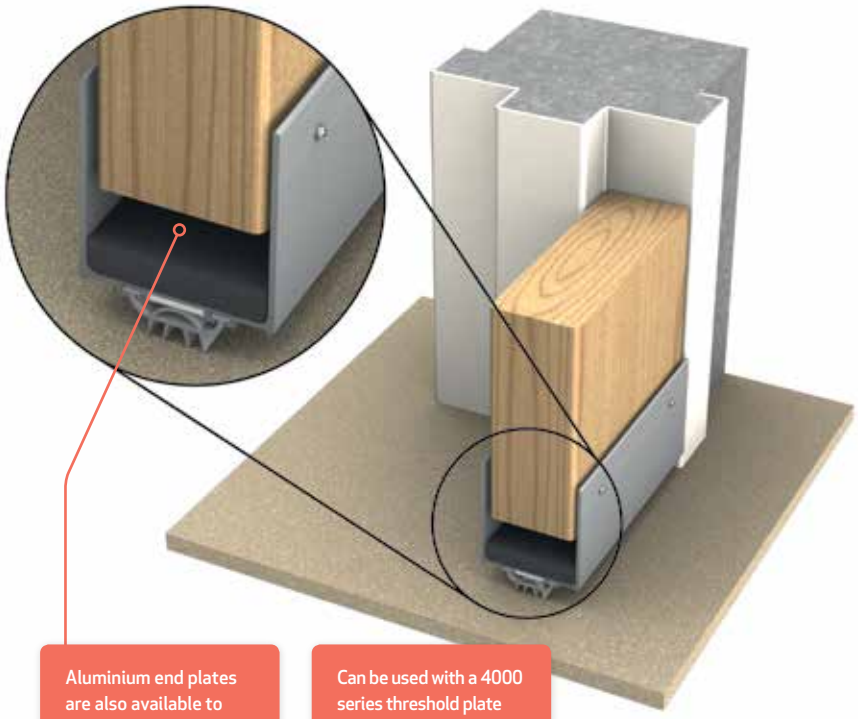
Up to 120 minute proprietary fire door in steel frame

FDBU60 Door Bottom Upgrade Seals

Application: The FDBU60 door bottom seals allow for upgrading of both nominal 35mm thick (mini) fire doors and 45 mm thick (maxi) fire doors (where door bottom gaps exceed the allowable 10mm, as per AS1905 Part 1), and can accommodate a door bottom clearance of up to and including a maximum of 60mm.

These seals can be easily installed without removing the door leaf.

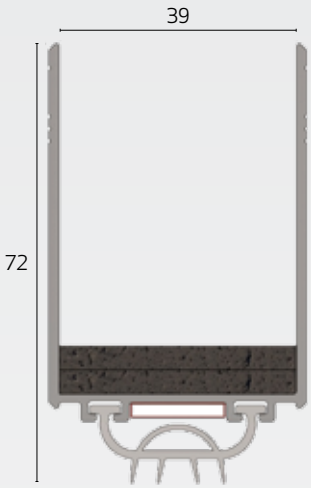
✓ *Please check with our Technical Department or the Fire Door Manufacturer for relevant test approvals and suitability for door type.*



Aluminium end plates are also available to seal this void where desired. (Please contact Kilargo for more details).

Can be used with a 4000 series threshold plate for uneven surfaces.

FDBU60 fire door bottom upgrade seal – Used to upgrade existing fire doors where door bottom gaps exceed the allowable 10mm as per AS1905/1.



FDBU60-35 Can seal gaps up to 60mm maximum under nom. 35mm proprietary fire doors.

FDBU60-45 Can seal gaps up to 60mm maximum under nom. 45mm proprietary fire doors.

Up to 120 minute proprietary fire door in steel frame

IFD-D Series Door Kits

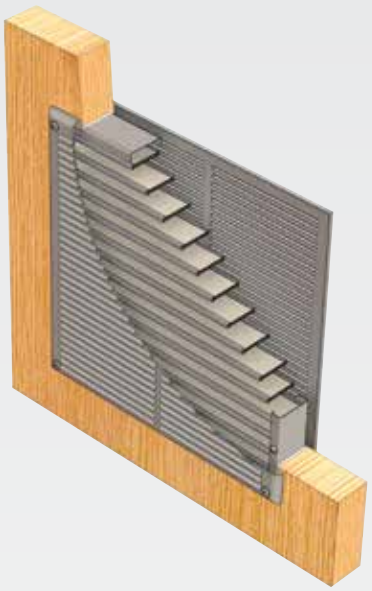
Application: The **IFD-D series** intumescent grilles have been fire tested in accordance to AS1530.4 for up to and including a 2 hour rating with most proprietary fire door assemblies, complying with AS1905.1.

The damper units are slimline with an overall thickness of only 35mm allowing them to be flush-fitted within conventional 35 and 45mm nominal fire door leaves.

Standard Door Kit Sizes

- 600mm x 300mm
- 450mm x 450mm
- 600mm x 600mm

✓ *Please check with our Technical Department or the Fire Door Manufacturer for relevant test approvals and suitability for door type.*



The IFD-D intumescent fire damper kit comes complete with a pair of decorative face-fixed powder coated cover grilles that provide a clean / neat appearance, plus a tube of Kilargo fire-rated mastic.

Smoke Door Sealing Solutions

Building regulations require that large building volumes are sub-divided into smaller compartments to resist the spread of fire and smoke.

Constructing an impermeable smoke barrier is a relatively simple task, however, more complex is providing smoke protection for the doorways which need to be formed in this barrier for the building to function effectively.

To operate effectively, doors require clearances between the door leaf and frame, and between the bottom of the door and floor. These clearances allow the door to be opened and closed easily and accommodate normal building movement. However if these clearances are left unsealed they are vulnerable to the passage of fire, smoke and sound.

One might expect a tested and proven fire door to also provide smoke protection as a matter of course. Unfortunately, in most instances, this is not so. If the door is not fitted with an additional smoke seal then large quantities of smoke will pass through the perimeter gaps. Tests show that with a conventional 25mm door stop, a fire door is a very poor smoke barrier. Smoke leakage in excess of 340m³/hour can be expected!

The principles of smoke containment are quite different from fire containment, even though the compartment boundaries may be the same. A typical door assembly will quite probably be exposed to smoke, independently of fire (in testing and in practice) - so it needs to be separately designed and evaluated for smoke.

The Nature of Smoke

When fire breaks out in a building the threat is two-fold.

Firstly there is the fire itself and the hot noxious gases and smoke generated in the immediate vicinity.

Secondly there is dense toxic smoke which migrates away from the fire source. If left unchecked this smoke will rapidly spread to adjacent compartments and pose a significant threat to people some distance away from the fire.

It is now agreed that this "remote smoke" is a major contributor to fatalities and serious injuries in structural fires.

In a fire situation , the efficient combustion of any fuel with a plentiful supply of oxygen will yield practically no smoke, just relatively harmless Carbon dioxide (CO_2) and water vapour. However, in a confined space, such as a room in a building, there will be a rapid depletion in available oxygen and inefficient combustion will result. This will lead to large quantities of carbon monoxide (CO), nitrogen dioxide (No_2) and hydrogen cyanide (HCN) to evolve, as well as un-burned particles of fuel that result in thick smoke.

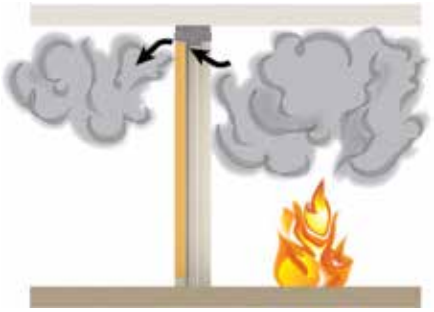
The level of carbon monoxide in the atmosphere is almost immeasurable at 0.1ppm (or 0.00001%), but when the level increases to as low as 1% in a confined space it can be considered lethal. Through the lungs this gas is absorbed preferentially into the bloodstream where it binds with red blood cells and prevents the uptake of oxygen necessary for the brain to function.

To survive, humans require a minimum of 14% oxygen and without this, dis-orientation will occur in as little as 20 seconds; unconsciousness in about a minute; and death by asphyxiation shortly after.

Smoke Door Sealing Solutions cont'd

Smoke Behaviour

If we take the example of a fire in a room; from the seat of the fire, there will be produced a plume of smoke. Hot gases are less dense and so they rise due to their buoyancy, carrying the soot particles through entrainment and associated turbulence. The plume will continue to rise, so long as it is hot and therefore buoyant, or, until it meets an obstruction, such as the ceiling. On meeting this obstruction it will begin to spread sideways, driven by the continuously expanding gases behind it. In a closed compartment, a PRESSURE will be created by this combustion process and this pressure needs to be taken into account in all design considerations particularly at the door.



The method of smoke transfer is first of all at ceiling level, due to its buoyancy, then along paths of least resistance, and under significant pressure. These are basic laws of physics, so it is inevitable that the smoke will spread if un-hindered. It is also obvious that the smoke front will travel greater distances than the flame front, and at much higher speed. The main reasons in fact, for the higher casualties from smoke.

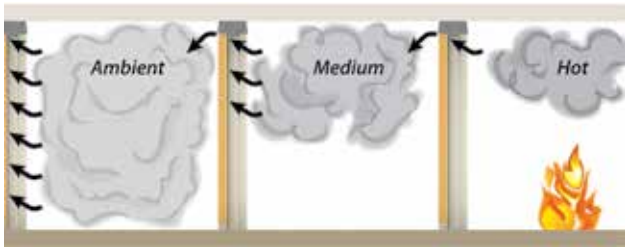
Further away from the room of origin, the smoke will have cooled and lost some of its buoyancy so it will come down more to floor level but will still be under some pressure. It will also still be highly toxic.

In order to limit that smoke spread, the Kilargo solution is to fit an appropriate sealing system which, when properly located and secured, can help in preventing the passage of smoke from one compartment to the next.

Smoke Temperature Classifications

Door perimeter sealing systems will vary depending on the design temperature at which they are required to contain smoke.

Smoke is typically defined in three (3) categories:



Ambient Smoke: (or cold smoke) is smoke at a relatively cool temperature. This smoke is quite remote from the source of the fire and has little or no buoyancy.

Medium Temperature Smoke: is defined as smoke at 200°C. The Building Code of Australia currently requires smoke doors to resist the passage of smoke at 200°C for 30 minutes. Research has shown that medium temperature smoke is encountered adjacent to the room of fire origin and may also represent the conditions within a room of fire origin during a sprinkler controlled fire scenario.

Hot Smoke: is defined as smoke at temperatures in excess of 600°C. Typically hot smoke is associated with a fully developed fire scenario in the room of fire origin.

Application

Smoke door assemblies are designed to improve life safety in buildings by limiting the spread of smoke through door openings and ensuring egress paths remain un-obscured and tenable.

Typical applications include:

Lift lobby's: where smoke doors are utilized to create a refuge and keep the lobby area free of smoke in the event of fire.

Hospitals: where immobility of patients necessitates extended evacuation times and greater levels of protection through smoke compartmentation.

Hotel or multi-residential: unit entry type doors, where tenability in the common escape corridor is vital.

Current Australian Smoke Door Regulations

Deemed to Satisfy Construction

The Building Code of Australia (BCA) provides limited information in relation to smoke doors.

Specification C3.4* requires that *"Smoke doors must be constructed so that smoke will not pass[1] from one side of the doorway to the other"* and provides the following "deemed to satisfy" guidance

A smoke door of one or two leaves satisfies Clause 3.1 if it is constructed as follows:

(a) The leaves are side-hung to swing—
- *(i) in the direction of egress; or*
- *(ii) in both directions.*

(b) (i) The leaves are capable of resisting smoke at 200°C for 30 minutes.
- *(ii) Solid-core leaves[2] at least 35mm thick satisfy (i).*

(c) The leaves are fitted with smoke seals[3].

(d) (i) The leaves are normally in the closed position; or
- *(ii) (A) The leaves are closed automatically with the automatic closing operation initiated by smoke detectors, installed in accordance with the relevant provisions of AS 1670.1, located on each side of the doorway not more than 1.5 m horizontal distance from the doorway; and*
- *(B) in the event of power failure to the door, the leaves fail-safe in the closed position.*

(e) The leaves return to the fully closed position after each manual opening.

(f) Any glazing incorporated in the door complies with AS 1288.

(g) (i) If a glazed panel is capable of being mistaken for an unobstructed exit, the presence of the glass must be identified by opaque construction.
- *(ii) An opaque mid-height band, mid-rail or crash bar satisfies (i).*

***Unfortunately this specification creates some confusion, particularly with regard to:**

1. the perceived zero smoke leakage requirement
2. the "solid core" door construction, which remains undefined
3. the requirement for the smoke seals to be fitted to the door leaves to comply.

Smoke Door Sealing Solutions cont'd

Performance Based Solutions

The Building Code of Australia allows provision for the use of *"Performance Based Alternate Solutions"*.

The introduction of two important **Australian Standards** has allowed fire engineers and building practitioners to specify smoke doors with quantifiable levels of performance with the knowledge that installed assemblies will meet their building design requirements. They are:

AS6905:2007 – *Smoke Doors*

AS1530.7:2007 – *Smoke control assemblies –Ambient and medium temperature leakage test procedure.*

AS6905 covers the specification, construction, installation and identification of smoke doors. The standard requires that assemblies are tested in accordance with the conditions detailed in AS1530.7, and most importantly it defines the maximum allowable smoke leakage rates for single and double door assemblies at prescribed temperature and pressure differentials.

When tested in accordance with AS1530 Part 7, the smoke door leakage rates shall not exceed the following:

(a) **Single leaf smoke doors**—*40m³/h at medium temperature conditions (25m³/h corrected to Standard Reference Conditions[1]), at a pressure differential of 25 Pa after exposure at 200°C for at least 30 min when subjected to a test in accordance with AS1530.7.*

(b) **Double leaves smoke doors**—*65m³/h at medium temperature conditions (40m³/h corrected to Standard Reference Conditions[1]), at a pressure differential of 25 Pa after exposure at 200°C for at least 30 min when subjected to a test in accordance with AS1530.7.*

AS1530.7 is a test method that allows the measurement of smoke leakage from one side of a door assembly to the other under elevated temperature test conditions.

The test methodology involves fitting a full size door assembly, including all essential hardware, to an approved test chamber in which temperature and pressure conditions are controlled. Ordinary air is used in the chamber, simulating the carrier gases of real smoke. Pressures are applied and resulting "leakages" through the test assembly are measured to determine its effectiveness as a barrier to resist smoke. Measurements are taken at pre-determined periods that provide data to align with the BCA deemed to satisfy regime of 30 minutes exposure at 200°C.

When subjected to elevated temperatures, a door assembly, will go through progressive changes and deflection and distortion of the door leaf is a commonly encountered problem. Incompatible door and seal combinations that cannot cater for this door movement will result in excessive leakage rates and consequently poor performance.

Kilargo Smoke Sealing Solutions

Kilargo have performed numerous ambient & medium temperature tests with door companies on a variety of Proprietary[2] doors.

Together with a detailed knowledge of fire & smoke containment, we can confidently offer the following performance tested and recommended 'deemed to satisfy' solutions to various smoke door applications.

For further information on the smoke performance of the Kilargo range of door sealing solutions, please feel free to contact our Technical Department for advice.

[1] The Standard Reference Conditions are defined as the temperature of 293.15 K (20°C) and the pressure of 101,325 Pa.

[2] Please contact Kilargo for detailed information on relevant tested Proprietary door systems.

Medium Temperature Smoke Door Solutions (Tested in accordance with AS1530 Part 7)

Door Configuration		Kilargo Products
Single Leaf Door	Proprietary Smoke Door Single Swing	IS1212 & IS8010si
Single Leaf Door	Proprietary Smoke Door Single Swing	IS7025si & IS8010si
Single Leaf Door	Proprietary Smoke Door Single Swing	IS1515 & IS8010si
Single Leaf Door	Proprietary Smoke Door Single Swing	KG2512BW & IS8005si
Double Leaf Door	Proprietary Smoke Door Single Swing	IS0511 & IS7061 & KP3504TF & IS4130
Single & Double Leaf Door	Proprietary Smoke Door Auto Sliding	ISSBE-01 to 06
Single & Double Leaf Door	Proprietary Smoke Door Auto Sliding	ISSDA301

Important Note: As per the guidelines set out in AS6905, side-hung smoke doors must be tested opening towards and away from the heated enclosure unless the direction of exposure can be clearly identified. If the leakage test report for your application only has results from one direction, you may not have the results from the direction you need. AS1530 Part 7. 2007 states that results from each direction are required for specimens tested at medium temperature. It is therefore important to determine the orientation for your application prior to specification, ensuring the correct medium temperature leakage data is applied.

Performance Tested Solutions – tested to AS1530.7 with proven medium temperature smoke leakage rates across various pressures, as per the leakage rate guidelines set out in AS6905.

These systems incorporate a complete tested door assembly, including a proprietary door and selected performance door seals, combining to cater for door movement and provide the best leakage rates possible within the specified parameters.

Proprietary smoke door in steel frame

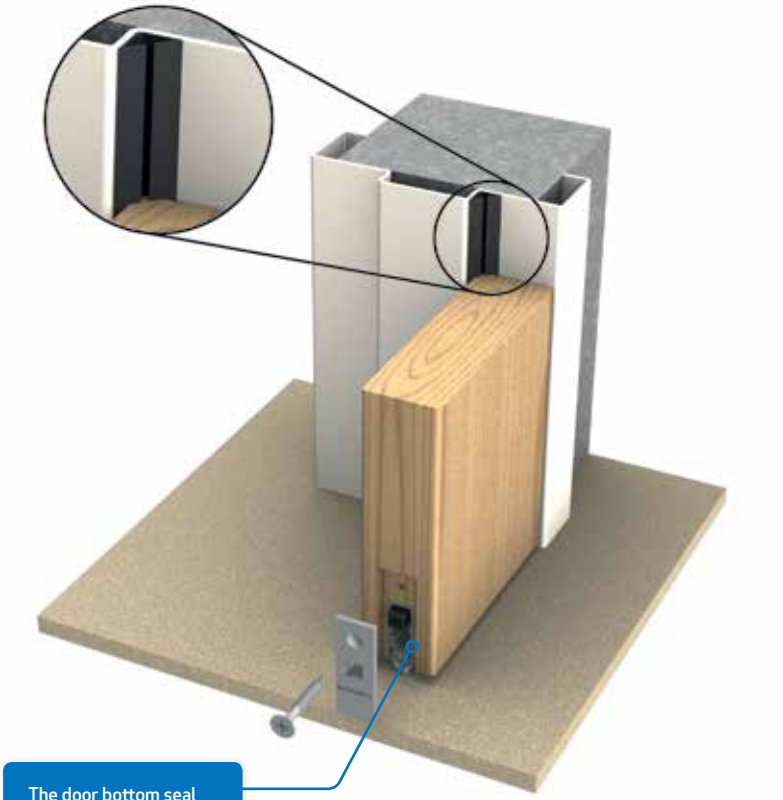
IS1212, IS8010si

Application: This sealing combination is suitable for fire engineered designs where quantifiable medium temperature smoke leakage data is required.

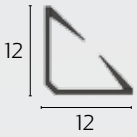
This system is tested in accordance with AS1530 Part 7 and complies with the requirements of AS6905.

This system provides an ideal smoke sealing solution for unit entry doors on residential apartments of minimum 35mm thick.

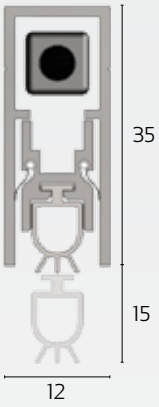
- ✓ *Please check with our Technical Department for suitability of this sealing system with proprietary door type.*
- ✓ *Medium temperature leakage data available upon request.*



The door bottom seal is shown with the operating button on the visible side to highlight illustration. When installing, the operating button would be located on the hinge side of the door for activation against the door frame rebate.



IS1212 perimeter seal – (12mm x 12mm)
Retrofit self-adhesive seal with proven smoke & acoustic performance.



IS8010si automatic door bottom seal – Medium duty, fully mortised automatic door bottom seal also with proven smoke & acoustic performance.

Proprietary smoke door in steel frame

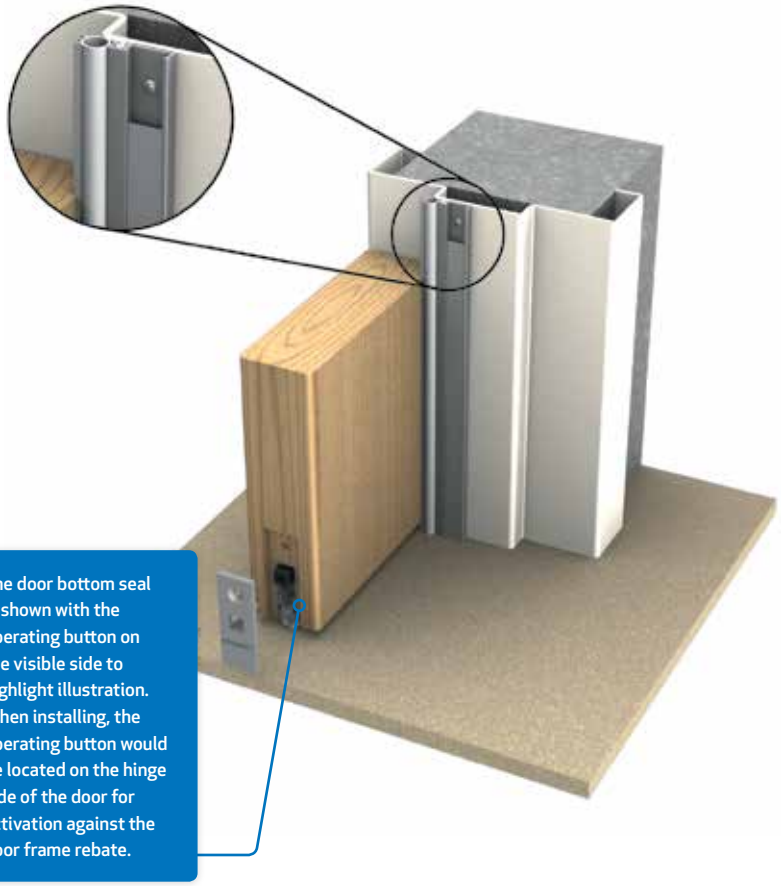
IS7025si, IS8010si

Application: Suitable for fire-engineered designs where this sealing combination is required to be tested in accordance with AS1530 Part 7.

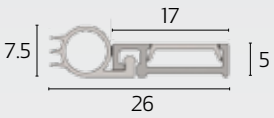
Although tested to AS1530 Part 7 it is important to highlight that the resulting leakage data for this system falls outside the maximum leakage guidelines set out in AS6905.

In fact, all 'stop-mounted' door seals will result in greater leakage rates when tested opening towards the heated enclosure (akin to a unit entry door scenario), due to door deflection toward the heat source.

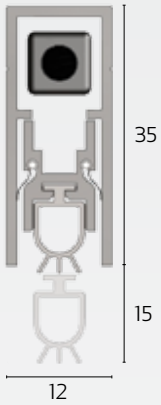
- ✓ *Please check with our Technical Department for suitability of this sealing system with your proprietary door type.*
- ✓ *Medium temperature leakage data available upon request.*



The door bottom seal is shown with the operating button on the visible side to highlight illustration. When installing, the operating button would be located on the hinge side of the door for activation against the door frame rebate.



IS7025si perimeter seal – Slimline, stop-mounted smoke & acoustic seal featuring a durable silicone compression bulb.



IS8010si automatic door bottom seal – Medium duty, fully mortised automatic door bottom seal also with proven smoke & acoustic performance.

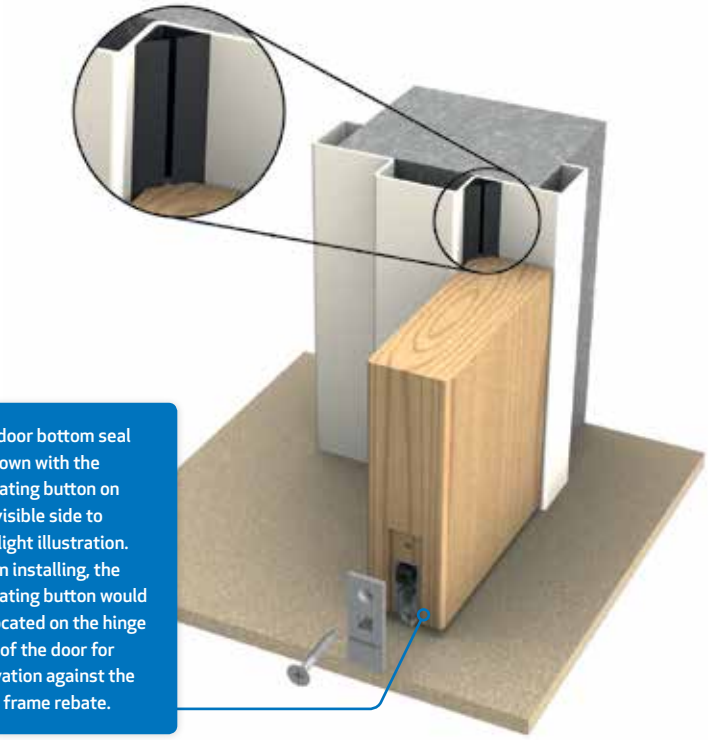
Proprietary smoke door in steel frame

IS1515, IS8010si

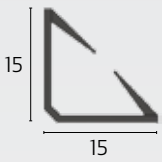
Application: This sealing combination is suitable for fire engineered designs where quantifiable medium temperature smoke leakage data is required.

This system is tested in accordance with AS1530 Part 7 and complies with the requirements of AS6905.

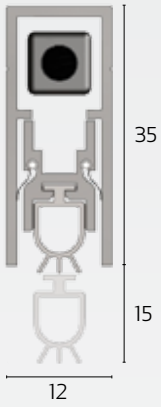
- ✓ *The IS1515 perimeter seal requires a 4-5mm gap between the frame and the door leaf to function correctly.*
- ✓ *Please check with our Technical Department for suitability of this sealing system with proprietary door type.*



The door bottom seal is shown with the operating button on the visible side to highlight illustration. When installing, the operating button would be located on the hinge side of the door for activation against the door frame rebate.



IS1515 perimeter seal – (15mm x 15mm) Retrofit self-adhesive seal with proven smoke & acoustic performance.



IS8010si automatic door bottom seal – Medium duty, fully mortised automatic door bottom seal also with proven smoke & acoustic performance.

Medium Temperature Test Results (Corrected to STP)*

Door Configuration / Pressure	Exposure Temp	Door Perimeter Tested	Leakage Rate (m^3/h) corrected to STP conditions @ a Pressure Differential of		
			10Pa	25Pa	50Pa
Opening Towards Positive Pressure (fire side)	Medium (200°C)	Entire Perimeter	< 2	< 2	< 2
Opening Towards Positive Pressure (fire side)	BCA Spec C3.4 Medium (200°C) > 30 minutes	Entire Perimeter	< 2	< 2	< 2

NOTE: The medium test with exposure times greater than 30 minutes is consistent with the BCA requirements of Specification C3.4 which requires doorsets to be resistant to smoke at 200°C for 30 minutes.

* (STP) Standard Temperature & Pressure (20°C & 101,325 Pa)

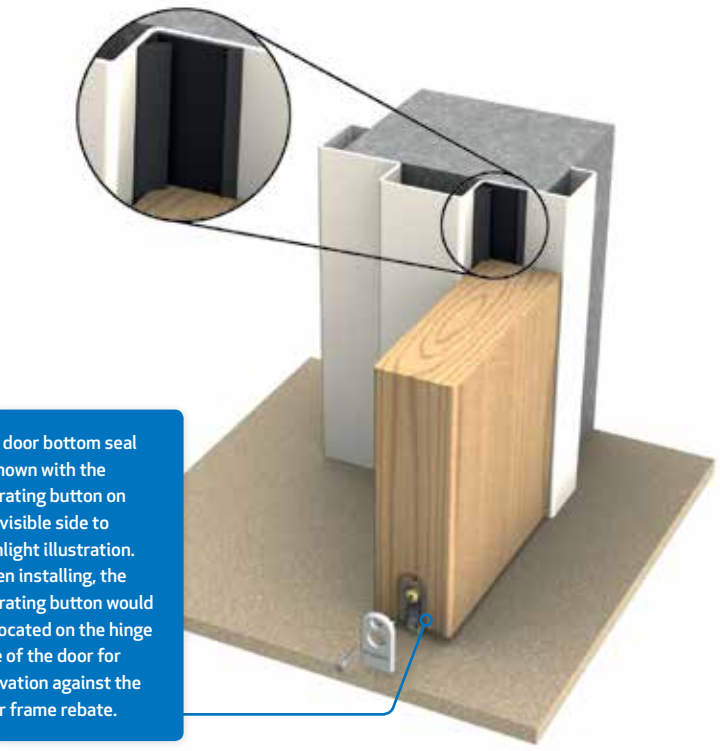
Proprietary smoke door in steel frame

KG2512BW, IS8005si

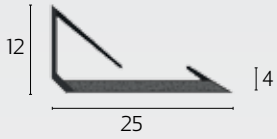
Application: This sealing combination is suitable for fire engineered designs where quantifiable medium temperature smoke leakage data is required.

This system is tested in accordance with AS1530 Part 7 and complies with the requirements of AS6905.

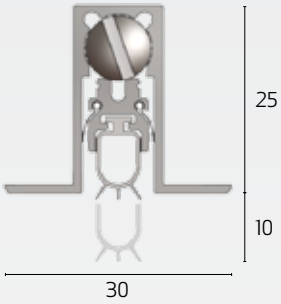
- ✓ *The KG2512BW perimeter seal requires a nominal 3mm gap between the frame and the door leaf to function correctly.*
- ✓ *Please check with our Technical Department for suitability of this sealing system with proprietary door type.*



The door bottom seal is shown with the operating button on the visible side to highlight illustration. When installing, the operating button would be located on the hinge side of the door for activation against the door frame rebate.



KG2512BW perimeter seal – High performance retrofit, intumescent fire, smoke & acoustic seal. This seal has two elastomeric sealing fins, catering for excessive door movement across varying temperatures.



IS8005si automatic door bottom seal – Medium duty, fully mortised automatic door bottom seal also with proven smoke & acoustic performance.

Medium Temperature Test Results (Corrected to STP)*

Door Configuration / Pressure	Exposure Temp	Door Perimeter Tested	Leakage Rate (m^3h) corrected to STP conditions @ a Pressure Differential of		
			10Pa	25Pa	50Pa
Opening Towards Positive Pressure (fire side)	Medium (200°C)	Entire Perimeter	< 2	2	3
Opening Towards Positive Pressure (fire side)	BCA Spec C3.4 Medium (200°C) > 30 minutes	Entire Perimeter	< 2	3	5

NOTE: The medium test with exposure times greater than 30 minutes is consistent with the BCA requirements of Specification C3.4 which requires doorsets to be resistant to smoke at 200°C for 30 minutes.

* (STP) Standard Temperature & Pressure (20°C & 101,325 Pa)

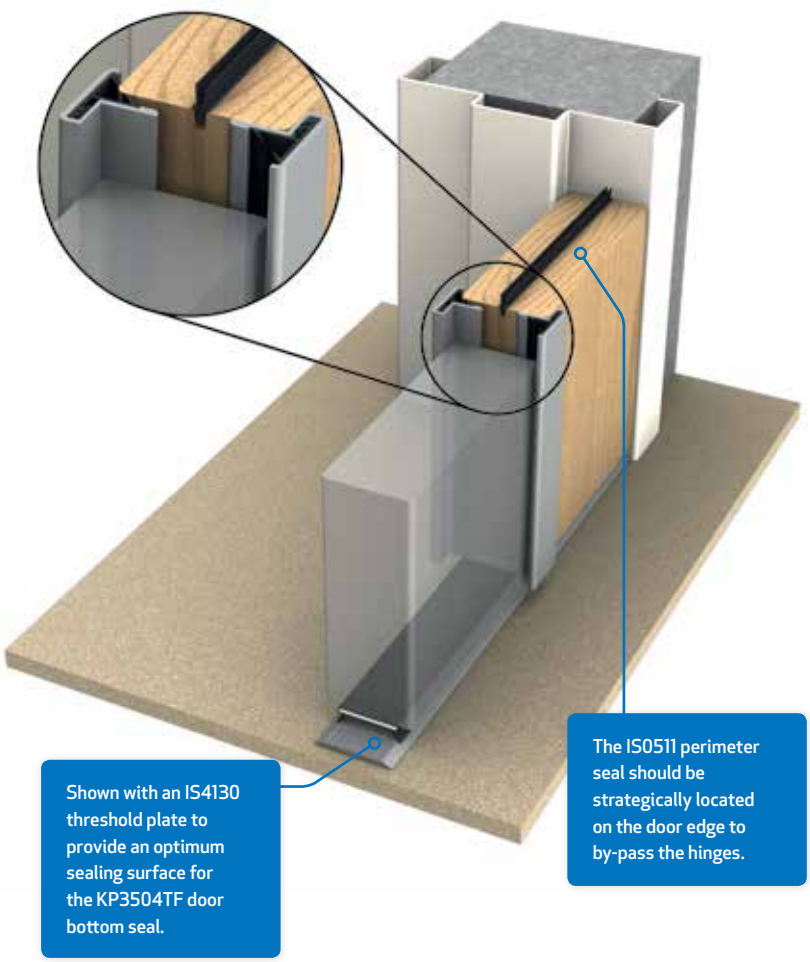
Proprietary smoke door pair in a steel frame

IS0511, IS7061, KP3504TF, IS4130

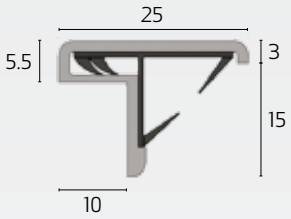
Application: This proprietary sealing system is suitable for fire engineered designs where designated medium temperature smoke leakage rates are required to be met for a double leaf door.

This system is tested in accordance with AS1530 Part 7 and complies with the requirements of AS6905.

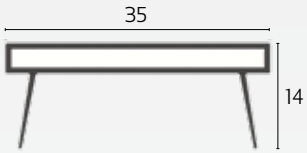
- ✓ *This system will require a sequence selector installed where both leaves are active.*
- ✓ *Please check with our Technical Department for suitability of this sealing system with proprietary door type.*
- ✓ *Medium temperature leakage data available upon request.*



IS0511 perimeter seal – The IS0511 twin-finned perimeter seal fits neatly into a 3mm x 5mm deep groove in the edge of the door leaf for effective smoke and acoustic containment.



IS7061 meeting stile seal – This unique seal brings all the smoke and acoustic benefits of the IS1212 seal to the meeting stiles of double leaf doors.



KP3504TF door bottom seal – Combined intumescent fire & smoke seal with dual offset fins. Easily retrofit to the underside of the door bottom providing excellent smoke & acoustic properties.

Complete performance smoke sealing system for the Besam proprietary automatic sliding door assembly

besam ASSA ABLOY

ISS BE-01/06

Application: This proprietary sealing combination is suitable for fire engineered designs where designated medium temperature smoke leakage rates are required to be met for a proprietary automatic aluminium glazed sliding smoke door, utilising the Besam tested system.

This system is tested in accordance with AS1530 Part 7 and complies with the requirements of AS6905.

- ✓ *Suitable for both single and double leaf configurations.*
- ✓ *Please check with our Technical Department for suitability of this sealing system with proprietary door type.*
- ✓ *Medium temperature leakage data available upon request.*

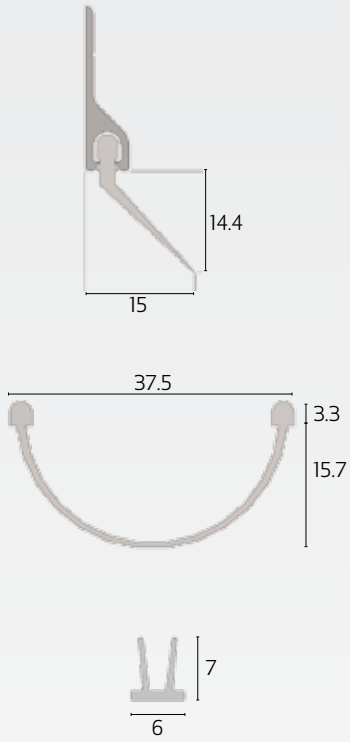
Shown with an IS5177Asi silicone fin seal reversed under door leaf.

ISS BE-01/06 smoke sealing set – This proprietary Besam smoke sealing kit contains the following combination of specialised sealing sections:

IS5177Asi

HPMSsi

ISRG7071si



Available in the following specified sets:
Single sliders up to a maximum of 3000mm (h) x 1120mm(w)

Bi-parting sliders up to a maximum of 3000mm (h) x 2400mm (w)

Product Code	Door Configuration	Maximum Door Size
ISS BE-01	Single Slider	2100mm (H) x 1120mm (W)
ISS BE-02	Bi-Parting Slider	2100mm (H) x 1900mm (W)
ISS BE-03	Bi-Parting Slider	2100mm (H) x 2400mm (W)
ISS BE-04	Bi-Parting Slider	3000mm (H) x 1900mm (W)
ISS BE-05	Bi-Parting Slider	3000mm (H) x 2400mm (W)
ISS BE-06	Single Slider	3000mm (H) x 1120mm (W)

Complete performance smoke sealing system for the Dorma EL301 proprietary automatic sliding door assembly

ISSDA301

Application: This proprietary sealing combination is suitable for fire engineered designs where designated medium temperature smoke leakage rates are required to be met for a proprietary automatic aluminium glazed sliding smoke door, utilising the Dorma EL301 system.

This system is tested in accordance with AS1530 Part 7 and complies with the requirements of AS6905.

- ✓ *Suitable for both single and double leaf configurations.*
- ✓ *Please check with our Technical Department for suitability of this sealing system with proprietary door type.*
- ✓ *Medium temperature leakage data available upon request.*

Shown with an IS5177Asi silicone fin seal reversed under door leaf.

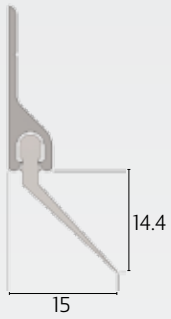
ISSDA301 smoke sealing set – This proprietary Dorma smoke sealing kit contains the following combination of specialised sealing sections:

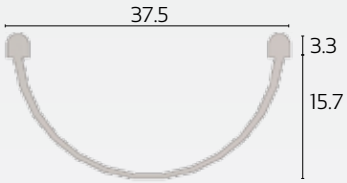
IS5177Asi

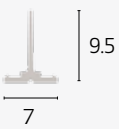
HPMSsi

IS10025si

RG9507si







Available in single & double door sets. Please check with our Customer Service department for standard door set inclusions.

'Deemed-to-Satisfy' Smoke Door Solutions (DTS BCA Specification C3.4)

Door Configuration		Kilargo Products
Single Leaf Door	Proprietary or Solid Core Smoke Door Single Swing	KP2004AS & KP4204TF
Single Leaf Door	Proprietary or Solid Core Smoke Door Single Swing	IS0511 & IS8011si
Single Leaf Door	Proprietary or Solid Core Smoke Door Double Swing	IS7071si & IS3022si & IS4130
Double Leaf Door	Proprietary or Solid Core Smoke Door Single Swing	IS0511 & IS8011si
Double Leaf Door	Proprietary or Solid Core Smoke Door Double Swing	IS7071si & IS3022si & IS4010
Double Leaf Door	Proprietary or Solid Core Smoke Door Double Swing	IS0511 & KP4204TF

Important Note: The 'deemed to satisfy' description of a smoke door is with the seals fitted to the door leaf.
The BCA makes no mention of fitting seals to the door frame or door stop of smoke doors!

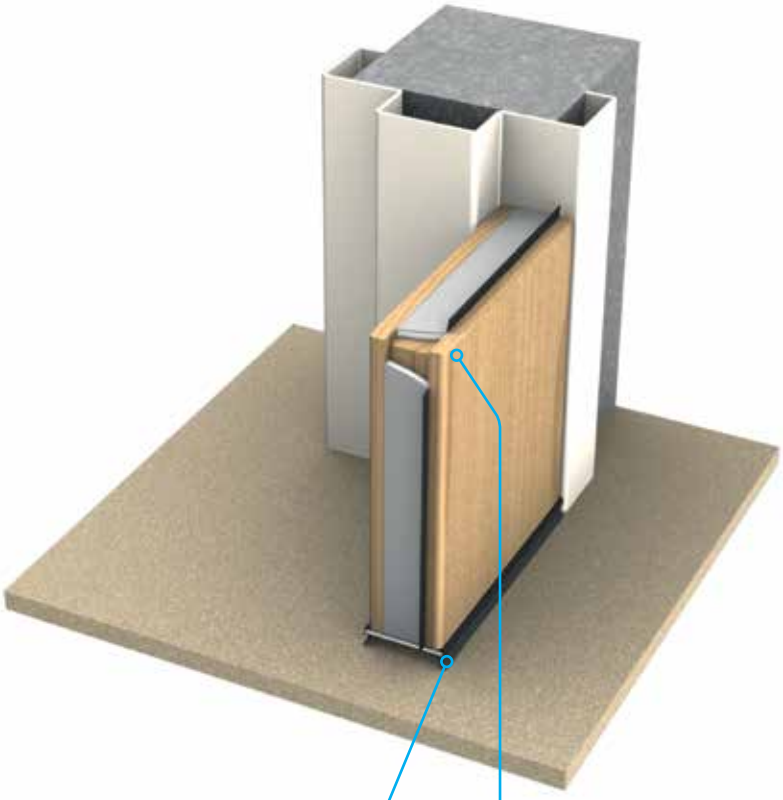
'Deemed to Satisfy' BCA Solutions – for applications with NO Fire-Engineered specification, designed to meet the provisions set out in Specification C3.4 of the Building Code of Australia.

The sealing components utilized for these applications are generally extruded silicone, or materials with a proven temperature resistance above 200°C, **fitted to the door leaf (leaves)**.

Proprietary or solid core smoke door in a steel frame

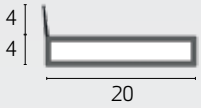
KP2004AS, KP4204TF

Application: This intumescent sealing combination is suitable for typical single leaf, hinged smoke doors requiring seals to contain smoke at 200°C for 30 minutes, as per the requirements set out in the Building Code of Australia, Specification C3.4 for 'Smoke Doors'.

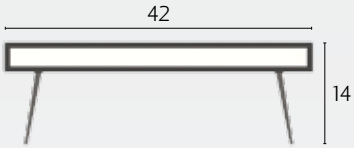


Can be installed with an IS4010 threshold plate to provide an optimum sealing surface for the KP4204TF door bottom seal.

Seal shown 'cut-away' for illustration purposes only



KP2004AS perimeter seal – (20mm x 4mm)
PVC encapsulated intumescent fire seal with asymmetrical elastomeric offset fin, rebated into the edge of the fire door leaf and held in place with aggressive self-adhesive backing tape. FOR INTERNAL USE ONLY.

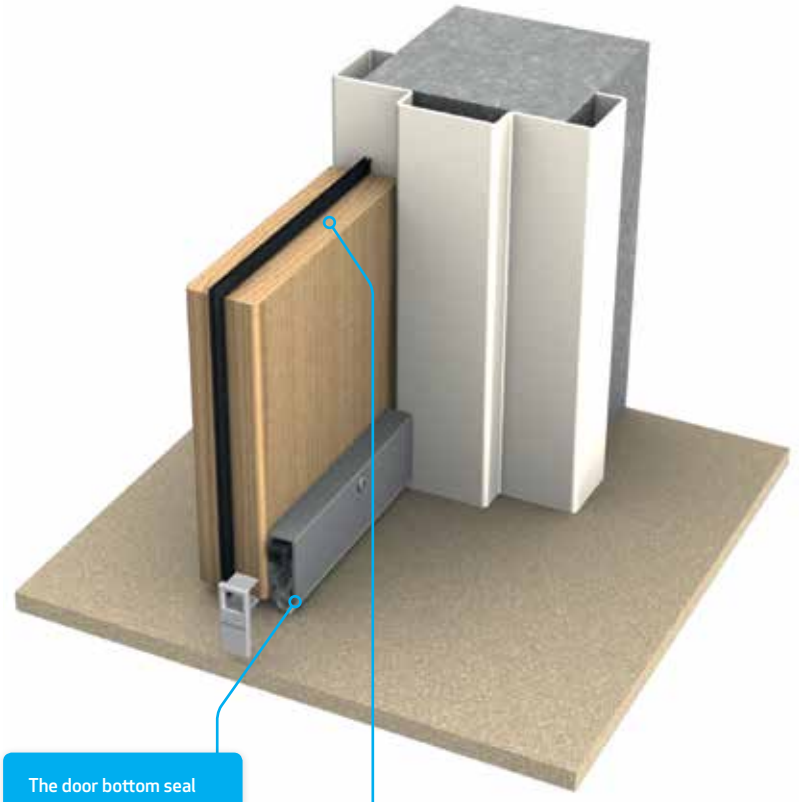


KP4204TF door bottom seal – (42mm x 4mm)
Combined intumescent fire & smoke seal with dual offset fins. Easily retrofit to the underside of the door bottom providing excellent smoke & acoustic properties.

Proprietary or solid core smoke door in a steel frame

IS0511, IS8011si

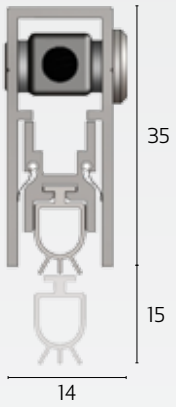
Application: This sealing combination is suitable for typical single leaf, hinged smoke doors requiring seals to contain smoke at 200°C for 30 minutes, as per the deemed to satisfy requirements set out in the Building Code of Australia, Specification C3.4 for 'Smoke Doors'.



The door bottom seal is shown with the operating button on the visible side to highlight illustration. When installing, the operating button would be located on the hinge side of the door for activation against the door stop.

The IS0511 perimeter seal should be strategically located on the door edge to by-pass the hinges and other items of door hardware, maintaining a continuous seal.

IS0511 perimeter seal – The IS0511 twin-finned perimeter seal fits neatly into a 3mm x 5mm deep groove in the edge of the door leaf for effective smoke and acoustic containment.



IS8011si automatic door bottom seal – Medium duty, surface mounted (or semi-rebated) automatic door bottom seal with proven smoke & acoustic performance.

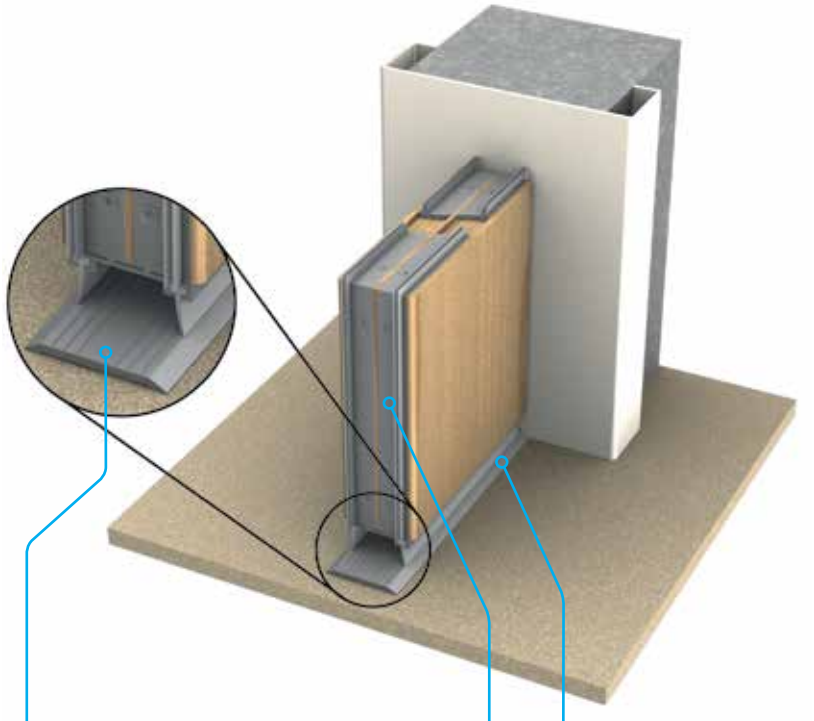
Proprietary or solid core smoke door in a steel frame

IS7071si, IS3022si, IS4130

Application: This sealing combination is suitable for single leaf, pivoted smoke doors requiring seals to contain smoke at 200°C for 30 minutes, as per the deemed to satisfy requirements set out in the Building Code of Australia, Specification C3.4 for 'Smoke Doors'.

The silicone gaskets of this architectural smoke sealing system can also be supplied with built-in antimicrobial protection, providing superior infection control for:

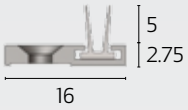
- ✓ *Hospitals, medical centres & nursing homes*
- ✓ *Laboratories and food handling facilities*
- ✓ *Childcare centres & schools*



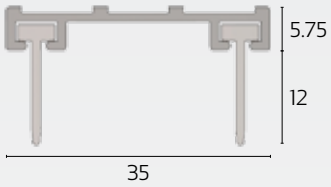
Shown with a low profile IS4130 threshold plate to provide an optimum sealing surface for the IS3022si door bottom seal. This prevents unsightly scrape or drag marks preserving the floor covering.

Two rows of the IS7071si seal are rebated to the head & stiles of the door leaf, by-passing the door hardware.

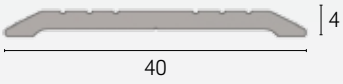
The IS3022si door bottom seal is fitted to the underside of the door, checked to allow for the pivot hardware without cutting the external silicone fins, ensuring a continuous smoke seal is achieved.



IS7071si perimeter seal – Surface-mounted (or rebated) these seals are installed to the head & stiles of the door leaf, providing excellent smoke & acoustic protection.



IS3022si door bottom seal – A sweep-action door bottom seal with high performance silicone rubber fins. This product is simply screw-fixed to the underside of the door leaf using the screws provided.

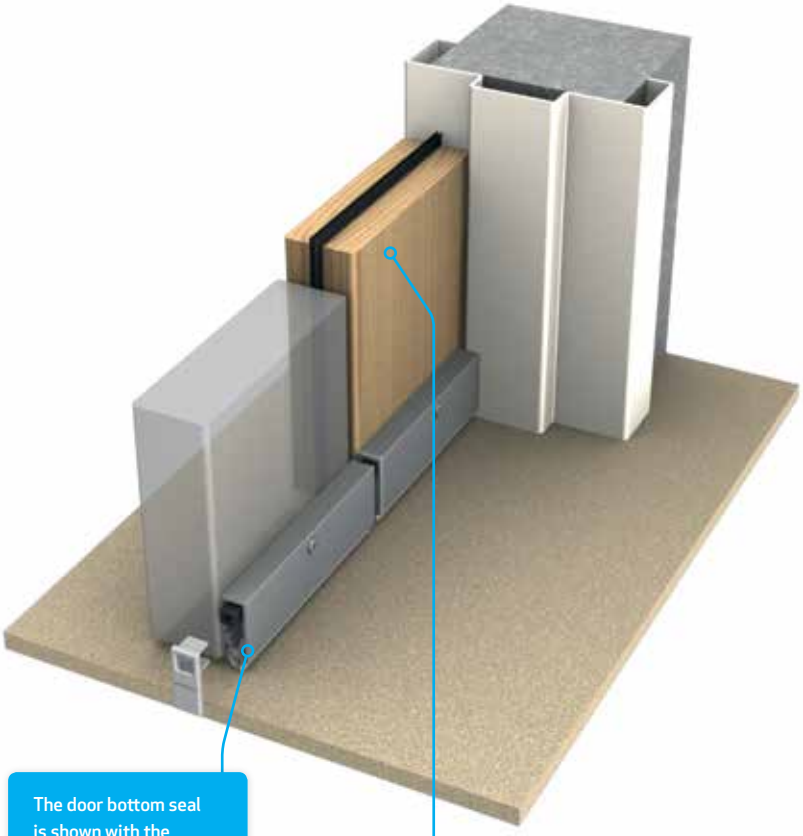


IS4130 threshold plate – A low profile, aluminium threshold plate only 4mm in height.

Proprietary or solid core smoke door pair in a steel frame

IS0511, IS8011si

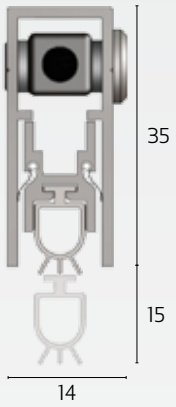
Application: This sealing combination is suitable for a typical pair of single-action smoke doors requiring seals to contain smoke at 200°C for 30 minutes, as per the deemed to satisfy requirements set out in the Building Code of Australia, Specification C3.4 for 'Smoke Doors'.



The door bottom seal is shown with the operating button on the visible side to highlight illustration. When installing, the operating button would be located on the hinge side of the door for activation against the door stop.

The IS0511 perimeter seal should be strategically located on the door edge to by-pass the hinges and other items of door hardware, maintaining a continuous seal.

IS0511 perimeter seal – The IS0511 twin-finned perimeter seal fits neatly into a 3mm x 5mm deep groove in the edge of the door leaf for effective smoke and acoustic containment.



IS8011si automatic door bottom seal – Medium duty, surface mounted (or semi-rebated) automatic door bottom seal with proven smoke & acoustic performance.

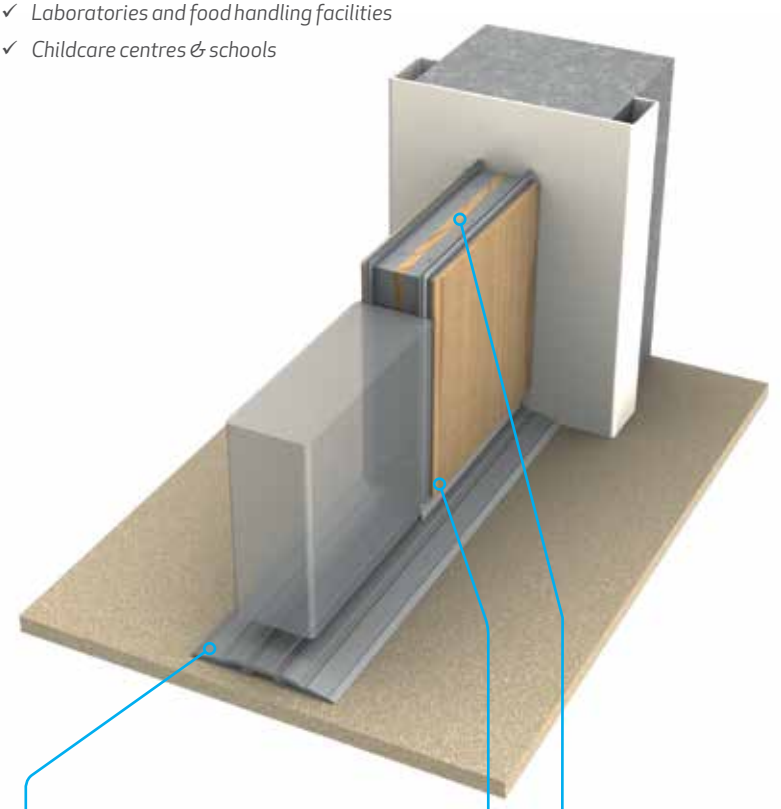
Proprietary or solid core smoke door pair in a steel frame

IS7071si, IS3022si, IS4010

Application: This sealing combination is suitable for a typical double-action pair of smoke doors requiring seals to contain smoke at 200°C for 30 minutes, as per the deemed to satisfy requirements set out in the Building Code of Australia, Specification C3.4 for 'Smoke Doors'.

The silicone gaskets of this architectural smoke sealing system can also be supplied with built-in antimicrobial protection, providing superior infection control for:

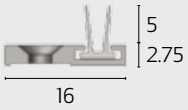
- ✓ *Hospitals, medical centres & nursing homes*
- ✓ *Laboratories and food handling facilities*
- ✓ *Childcare centres & schools*



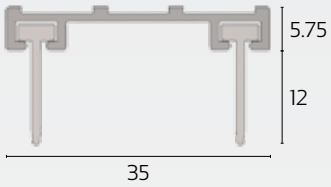
Shown with a low profile IS4010 threshold plate to provide an optimum sealing surface for the IS3022si door bottom seal. This prevents unsightly scrape or drag marks preserving the floor covering.

The IS3022si door bottom seal is fitted to the underside of the door, checked to allow for the pivot hardware without cutting the external silicone fins, ensuring a continuous smoke seal is achieved.

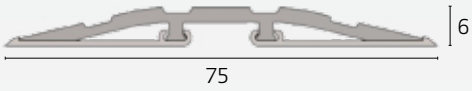
Two rows of the IS7071si seal are shown rebated to the head & stiles of the door leaf, by-passing the door hardware.



IS7071si perimeter seal – Surface-mounted (or rebated) these seals are installed to the head & stiles of each door leaf, providing excellent smoke & acoustic protection.



IS3022si door bottom seal – A sweep-action door bottom seal with high performance silicone rubber fins. This product is simply screw-fixed to the underside of the door leaves using the screws provided.

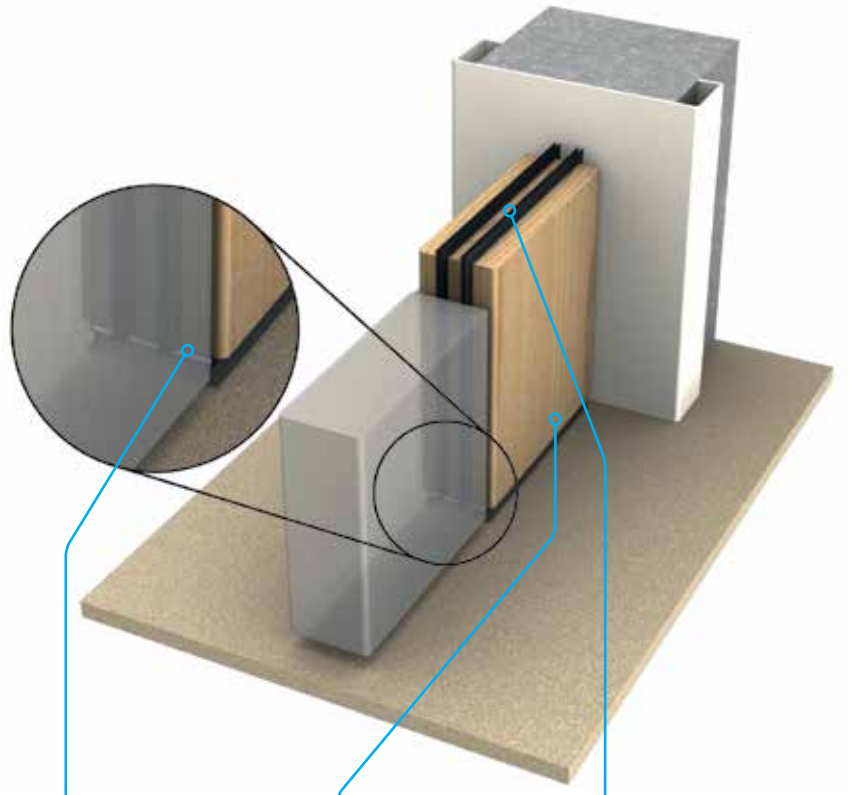


IS4010 threshold plate – A heavy-duty, low profile, aluminium threshold plate only 6mm in height.

Proprietary or solid core smoke door pair in a steel frame

IS0511, KP4204TF

Application: This sealing combination is suitable for a typical pair of double-action smoke doors requiring seals to contain smoke at 200°C for 30 minutes, as per the deemed to satisfy requirements set out in the Building Code of Australia, Specification C3.4 for 'Smoke Doors'.

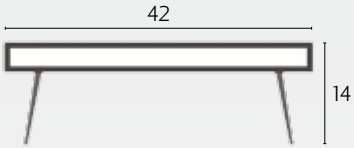


Can be installed with a low profile threshold plate to provide an optimum sealing surface.

The KP4204TF door bottom seal is fitted to the underside of the door, checked to allow for the pivot hardware without cutting the external silicone fins, ensuring a continuous smoke seal is achieved.

Two rows of the IS0511 seal are shown rebated to the head & stiles of the door leaf, by-passing the door hardware.

IS0511 perimeter seal – The IS0511 twin-finned perimeter seal fits neatly into a 3mm x 5mm deep groove in the edge of the door leaf for effective smoke and acoustic containment.



KP4204TF door bottom seal – (42mm x 4mm) Combined intumescent fire & smoke seal with dual offset fins. Easily retrofit to the underside of each door bottom providing excellent smoke & acoustic properties.

Ambient Temperature Smoke Door Solutions (Tested in accordance with AS1530 Part 7)

Door Configuration		Kilargo Products
Single Leaf Door	Proprietary Smoke Door Single Swing	IS7025si & IS8010si
Single Leaf Door	Proprietary Smoke Door Single Swing	IS7190si & IS8010si
Single Leaf Door	Solid Core Door Single Swing	IS1212 & IS8010si

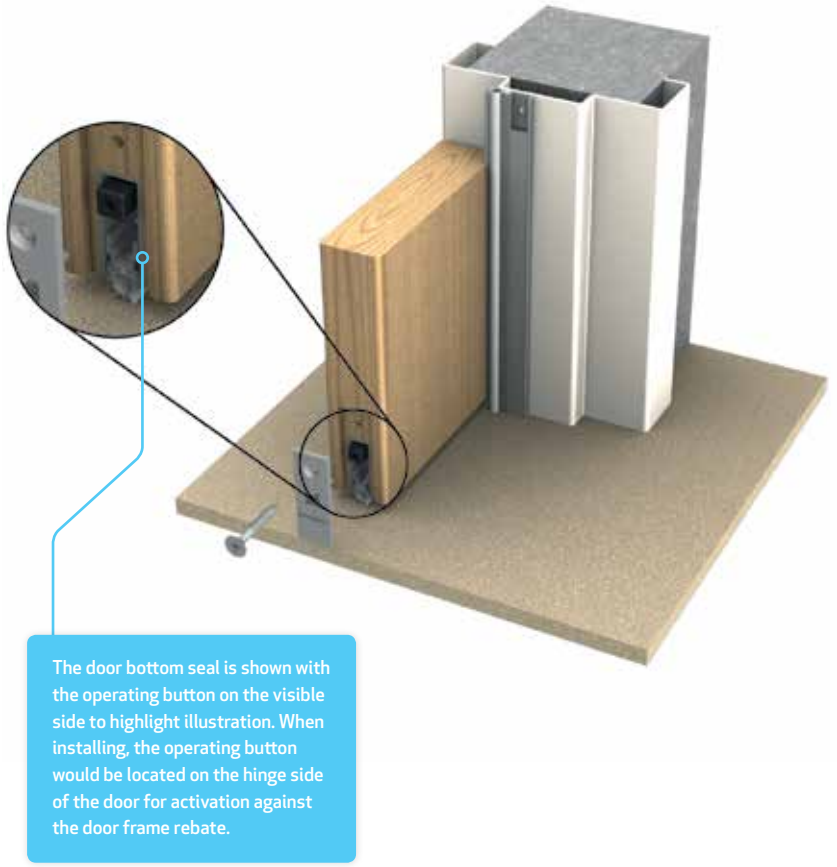
Proprietary smoke door in steel frame

IS7025si, IS8010si

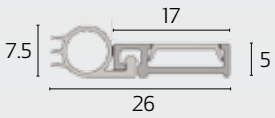
Application: This sealing combination is suitable for typical isolation room applications where quantifiable ambient temperature air/smoke leakage data is required to be tested in accordance with AS1530 Part 7, as per engineered specifications.

The IS7025si seal provides a compression seal for the door to close against, yet is very 'slim-line' when attached to the door stop and does not encroach on the door opening space.

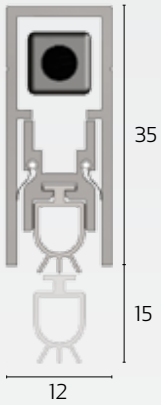
- ✓ *Please check with our Technical Department for suitability of this sealing system with your proprietary door type.*
- ✓ *Ambient temperature leakage data available upon request.*



The door bottom seal is shown with the operating button on the visible side to highlight illustration. When installing, the operating button would be located on the hinge side of the door for activation against the door frame rebate.



IS7025si perimeter seal – Slimline, stop-mounted smoke & acoustic seal featuring a durable silicone compression bulb.



IS8010si automatic door bottom seal – Medium duty, fully mortised automatic door bottom seal also with proven smoke & acoustic performance.

Proprietary smoke door in steel frame

IS7190si, IS8010si

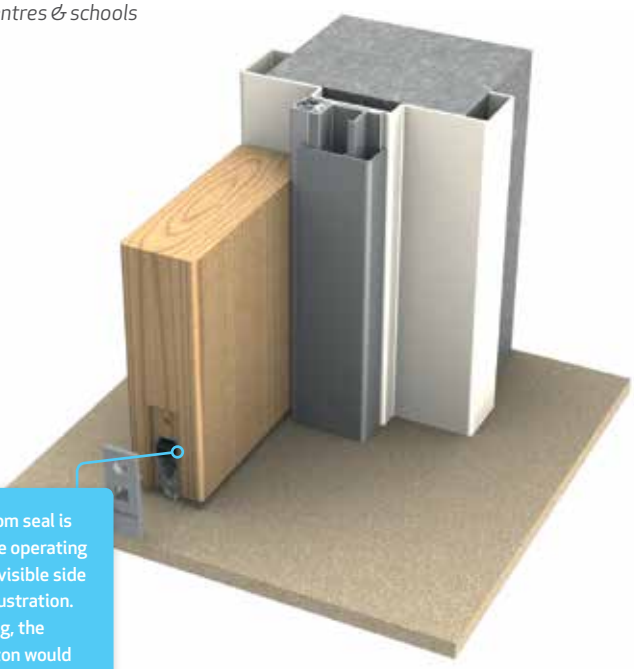
Application: This sealing combination is suitable for typical isolation room applications where quantifiable ambient temperature air/smoke leakage data is required to be tested in accordance with AS1530 Part 7, as per engineered specifications.

The larger sized IS7190si perimeter seal caters for more heavy-duty door applications, whilst controlling air leakage around the door perimeter within the prescribed specifications.

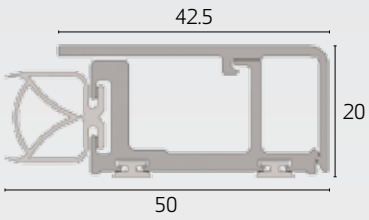
- ✓ *When fitting the IS7190si perimeter seal to rebated frames of single doors, specify a long back set door latch.*
- ✓ *Please check with our Technical Department for suitability of this sealing system with your proprietary door type.*
- ✓ *Ambient temperature leakage data available upon request.*

The silicone gaskets of this architectural smoke sealing system can also be supplied with built-in antimicrobial protection, providing superior infection control for:

- ✓ *Hospitals, medical centres & nursing homes*
- ✓ *Laboratories and food handling facilities*
- ✓ *Childcare centres & schools*

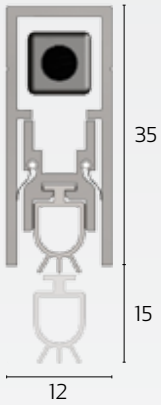


The door bottom seal is shown with the operating button on the visible side to highlight illustration. When installing, the operating button would be located on the hinge side of the door for activation against the door frame rebate.



IS7190si perimeter seal – Heavy-duty smoke & acoustic perimeter seal designed to be fitted to an existing door stop around the head & jambs of single-swing doors.

The IS7190si seal has a decorative aluminium, snap-fit cover plate, hiding the fixing screws, providing an aesthetic architectural appearance.



IS8010si automatic door bottom seal – Medium duty, fully mortised automatic door bottom seal also with proven smoke & acoustic performance.

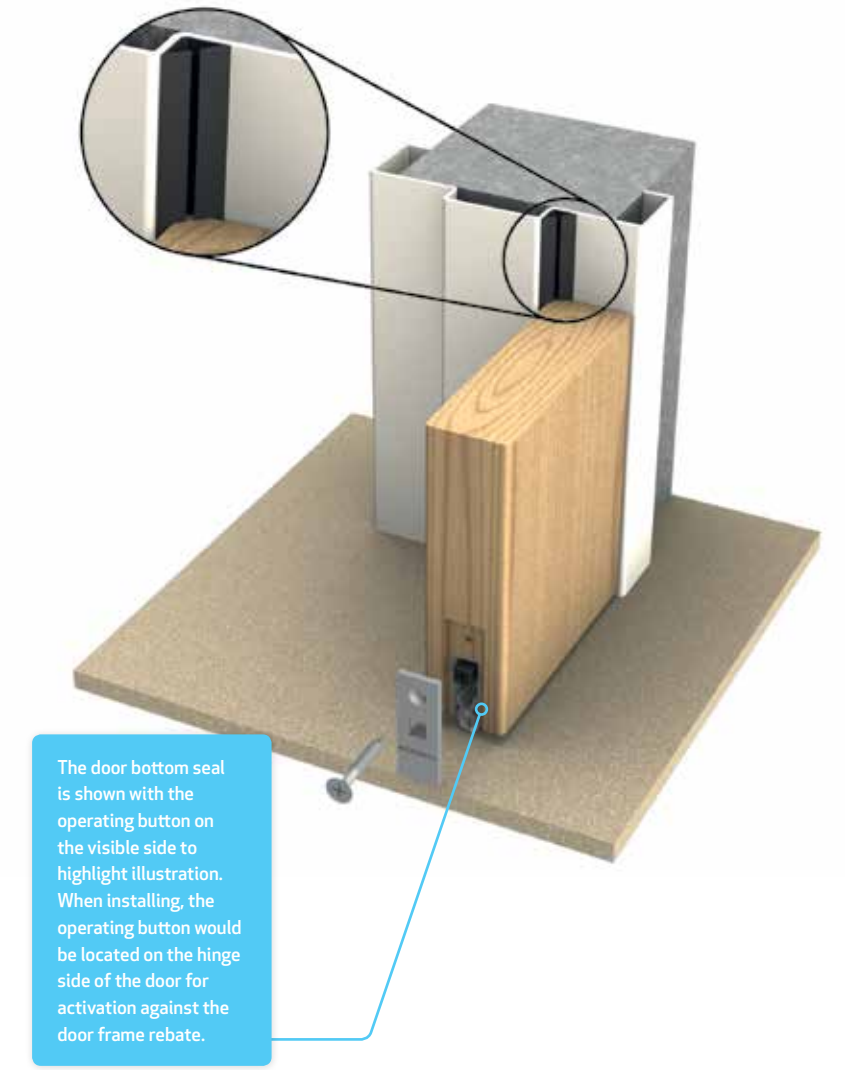
Solid Core door in steel frame

IS1212, IS8010si

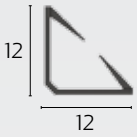
Application: This sealing combination, fitted to a nominal 35mm solid core door construction, is also suitable for typical isolation room applications where quantifiable ambient temperature air/smoke leakage data is required to be tested in accordance with AS1530 Part 7, as per engineered specifications.

The IS1212 perimeter seal is hidden in the frame rebate, providing a simple, easy to install, non-obtrusive application, assisting air leakage control around the door perimeter within the prescribed specifications.

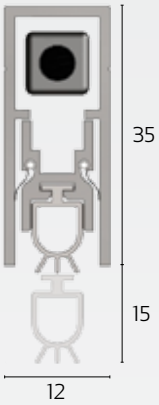
✓ *Ambient temperature leakage data available upon request.*



The door bottom seal is shown with the operating button on the visible side to highlight illustration. When installing, the operating button would be located on the hinge side of the door for activation against the door frame rebate.



IS1212 perimeter seal – (12mm x 12mm) Retrofit, self-adhesive seal with proven smoke & acoustic performance.



IS8010si automatic door bottom seal – Medium duty, fully mortised automatic door bottom seal also with proven smoke & acoustic performance.

Smoke Sealing Solutions (with no air/smoke leakage data)

Door Configuration		Kilargo Products
Single Leaf Door	Architectural or Solid Core Door Single Swing	IS1046si & IS8011si
Single Leaf Door	Architectural or Solid Core Door Single Swing	IS7020si & IS8036si
Single Leaf Door	Architectural or Solid Core Door Single Swing	IS7080si & IS8090si
Single Leaf Door	Architectural or Solid Core Door Single Swing	IS7095si & IS8090si
Double Leaf Door	Architectural or Solid Core Door Single Swing	IS7025si & IS7060si & IS8010si
Double Leaf Door	Architectural Glass Door Sliding	IS7310si & IS7320si
Double Leaf Door	Architectural Glass Door Single or Double Swing	IS7350si & IS7355si & IS5111si

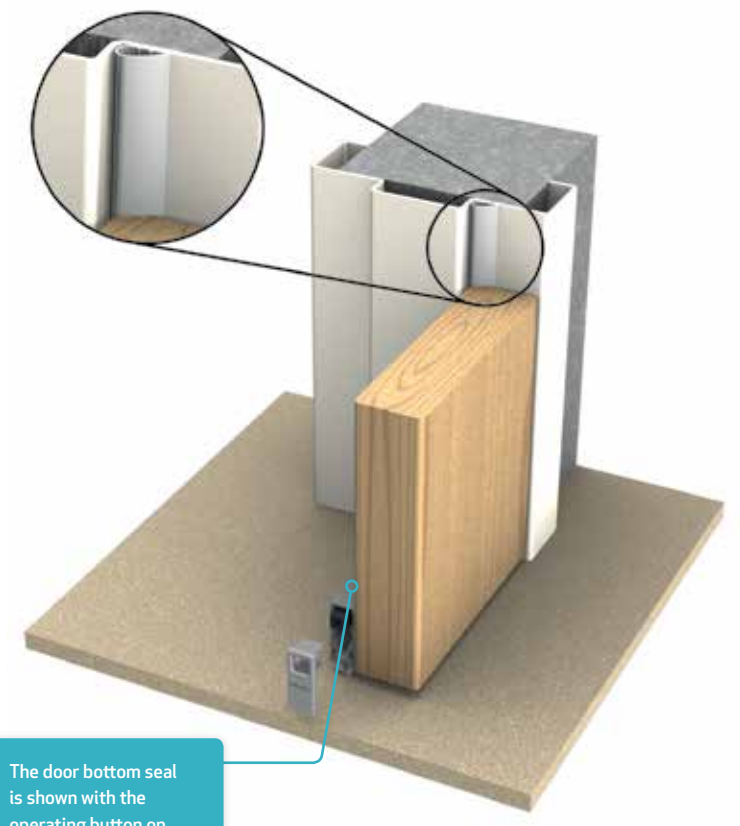
Architectural or solid core door in steel frame

IS1046si, IS8011si

Application: This sealing combination is suitable for a typical medium-duty, single leaf, hinged door assembly as a retrofit smoke and noise sealing solution, where no quantifiable smoke criteria is required.

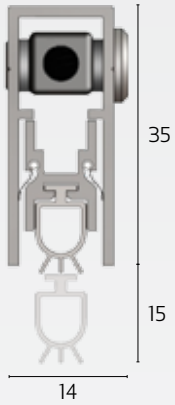
The silicone gaskets of this architectural smoke sealing system can also be supplied with built-in antimicrobial protection, providing superior infection control for:

- ✓ *Hospitals, medical centres & nursing homes*
- ✓ *Laboratories and food handling facilities*
- ✓ *Childcare centres & schools*



The door bottom seal is shown with the operating button on the visible side to highlight illustration. When installing, the operating button would be located on the hinge side of the door for activation against the door stop.

IS1046si perimeter seal – The IS1046si light duty, ribbed silicone compression seal, is mounted against door stops around perimeters of single swing doors. The aggressive self-adhesive backing tape provides for an easy peel-and-stick application to door frames.



IS8011si automatic door bottom seal – Medium duty, surface mounted (or semi-rebated) automatic door bottom seal with proven smoke & acoustic performance.

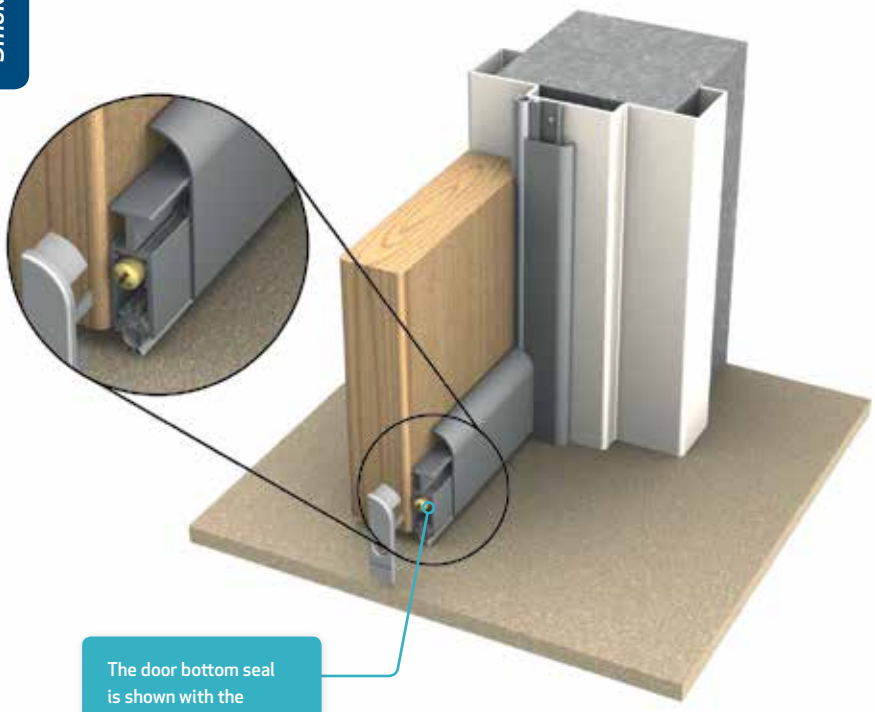
Architectural or solid core door in steel frame

IS7020si, IS8036si

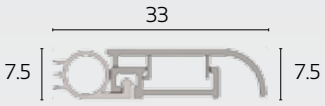
Application: This sealing combination is suitable for a typical medium-duty, single leaf, hinged door assembly as a retrofit smoke and noise sealing solution, where no quantifiable smoke criteria is required.

The silicone gaskets of this architectural smoke sealing system can also be supplied with built-in antimicrobial protection, providing superior infection control for:

- ✓ *Hospitals, medical centres & nursing homes*
- ✓ *Laboratories and food handling facilities*
- ✓ *Childcare centres & schools*



The door bottom seal is shown with the operating button on the visible side to highlight illustration. When installing, the operating button would be located on the hinge side of the door for activation against the perimeter seal.



IS7020si perimeter seal – The IS7020si tamper proof perimeter seal has a neat snap-fit aluminium cover plate to conceal fixing screws. Together with its soft silicone compression bulb, it provides an exceptionally smooth, architectural appearance.

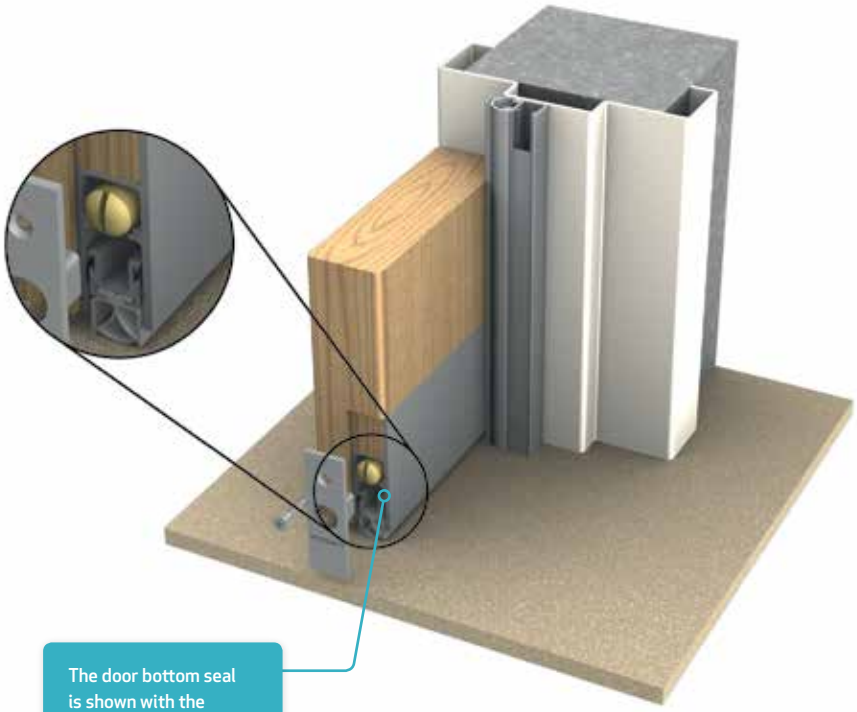
IS8036si automatic door bottom seal – Medium duty, face-fixed automatic door bottom seal with proven smoke & acoustic performance. The aluminium cover plate also provides a clean, architectural aspect.

Architectural or solid core door in steel frame

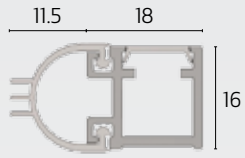
IS7080si, IS8090si

Application: This sealing combination is suitable for a typical medium to heavy duty, single leaf, hinged door assembly as a retrofit smoke and noise sealing solution, where no quantifiable smoke leakage criteria is required.

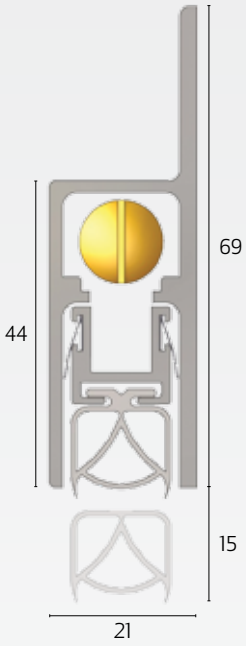
- ✓ *When fixing the IS7080si perimeter seal to rebated frames of single doors, specify a long back set door latch.*
- ✓ *The IS8090si automatic door bottom seal is shown semi-rebated into the base of the solid core door leaf, creating an aesthetic kick plate. This seal is adjustable for left or right handed operation.*



The door bottom seal is shown with the operating button on the visible side to highlight illustration. When installing, the operating button would be located on the hinge side of the door for activation against the door frame rebate (or perimeter seal if surface mounted).



IS7080si perimeter seal – The IS7080si perimeter seal has a compact, aesthetic design, with a triple-finned silicone gasket to assist in reducing smoke leakage. It can be installed in lieu of a door stop on both steel & timber door frames.



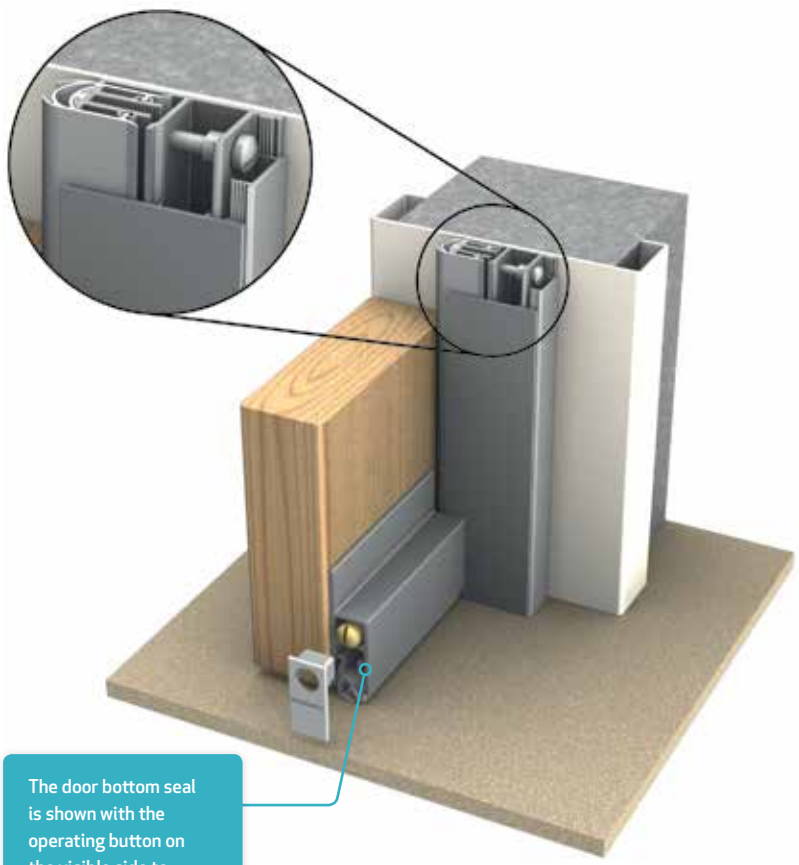
IS8090si automatic door bottom seal – A heavy-duty face-fixed (or semi-mortised) automatic door bottom seal featuring a high efficiency mechanism.

Architectural or solid core door in steel frame

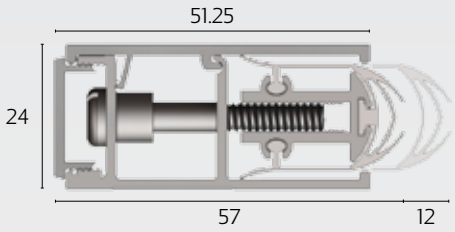
IS7095si, IS8090si

Application: This sealing combination is suitable for a typical heavy duty, single leaf, hinged door assembly as a retrofit smoke and noise sealing solution, where no quantifiable smoke leakage criteria is required.

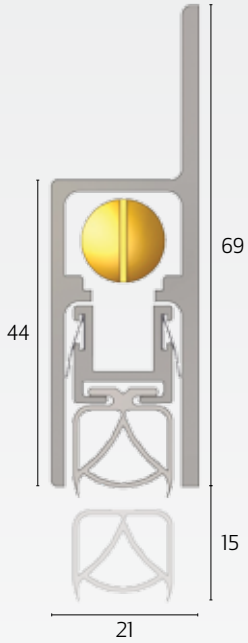
- ✓ *When fixing the IS7095si perimeter seal to rebated frames of single doors, specify a long back set door latch.*
- ✓ *The IS7095si perimeter seal can be easily butt-jointed at the corners of the frame creating a continuous seal, replacing the need for conventional door stops on both non fire-rated steel and timber door frames.*



The door bottom seal is shown with the operating button on the visible side to highlight illustration. When installing, the operating button would be located on the hinge side of the door for activation against the perimeter seal.



IS7095si perimeter seal – The IS7095si heavy duty, adjustable perimeter seal has a neat snap-fit cover plate to conceal the adjusting screw. It provides up to 12mm sealing adjustment for effective noise and smoke control. It can be installed in lieu of a door stop on both steel & timber door frames.



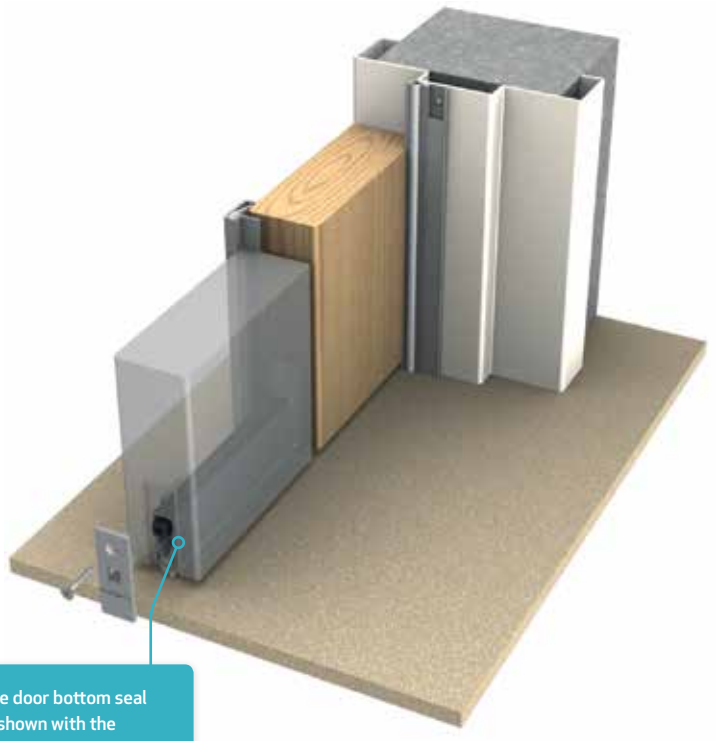
IS8090si automatic door bottom seal – A heavy-duty face-fixed (or semi-mortised) automatic door bottom seal featuring a high efficiency mechanism.

Architectural or solid core door pair in a steel frame

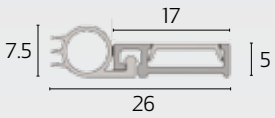
IS7025si, IS7060si, IS8010si

Application: This sealing combination is suitable for a double leaf, hinged door assembly as a retrofit smoke sealing solution to cater for ambient temperature (cold) smoke.

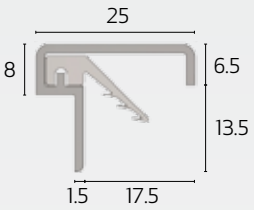
- ✓ *The IS7060si seal is effective in sealing the meeting stiles of plain and rebated double door assemblies.*
- ✓ *This system will require a sequence selector installed where both leaves are active*
- ✓ *For maximum smoke and acoustic performance, two IS7060si meeting stile seals can be specified, one for each door leaf.*



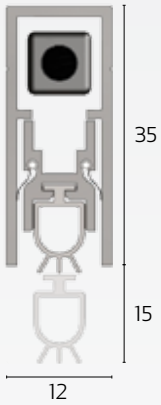
The door bottom seal is shown with the operating button on the visible side to highlight illustration. When installing, the operating button would be located on the hinge side of the door for activation against the door frame rebate.



IS7025si perimeter seal – Slimline, stop-mounted smoke & acoustic seal featuring a durable silicone compression bulb.



IS7060si meeting stile seal – This meeting stile seal is designed to be fitted to the active leaf of plain or rebated double doors.



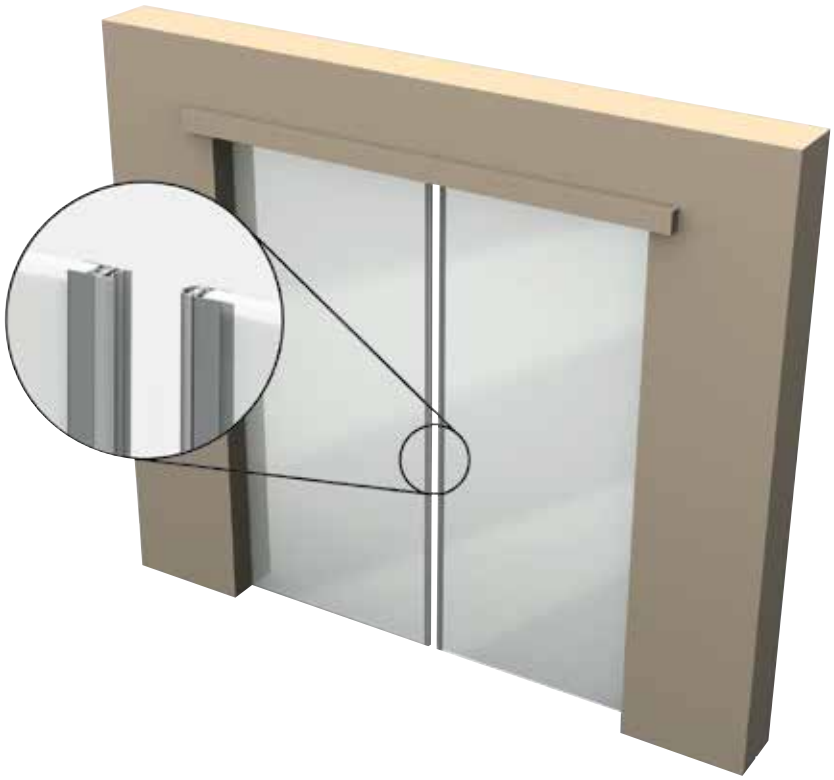
IS8010si automatic door bottom seal – Medium duty, fully-mortised automatic door bottom seal also with proven smoke & acoustic performance.

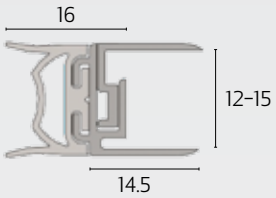
Sliding Frameless Glass Doors

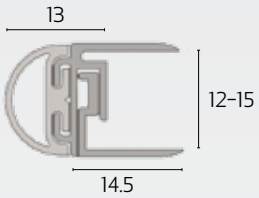
IS7300si (IS7310si, IS7320si)

Application: This sealing combination is suitable as a retrofit smoke sealing solution to cater for ambient (cold) temperature smoke containment, along with noise, dust, draught and weather protection.

These seals have an anodised two-piece carrier to suit 12mm – 15mm glass. The seals simply clip onto the door edge with an aggressive self-adhesive tape and cement into position.







IS7310si & IS7320si glass edge seals – These adjustable glass edge seals are ideal for meeting stiles of hinged, pivoted or sliding glass doors.

Designed to suit 12mm to 15mm frameless glass doors, the high performance silicone gaskets also help protect glass door edges from possible damage during operation.

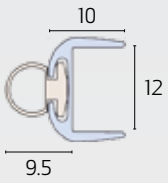
Pivoted Frameless Glass Doors (with top & bottom rail)

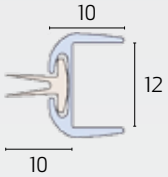
IS7350si, IS7355si, IS5111si

Application: This sealing combination is suitable as a retrofit smoke sealing solution to cater for ambient (cold) temperature smoke containment, along with noise, dust, draught and weather protection.

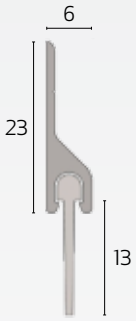
This sealing system is suitable for 12mm glass doors (10mm system also available). The clear, polycarbonate astragal seals simply clip onto the door edge and adhere with a clear, aggressive self-adhesive backing tape.

The IS5111si sweep seals are screw-fixed to the top & bottom aluminium rails, by-passing any door hardware.





IS7350si & IS7355si glass edge seals – These clear UV stabilised polycarbonate astragal seals, suit 12mm thick frameless glass doors, incorporating high temperature clear silicone gaskets. With an easy self-adhesive application, these seals are available with a clear silicone compression bubble seal, or a clear silicone flexible twin-fin wiping seal, to suit various glass door applications.



IS5111si sweep seal – A slim-line, medium duty, sweep action silicone seal, with an angled, aesthetically designed aluminium carrier.

Additional Smoke Sealing Combinations for Door Assemblies:

Additional Smoke Door Sealing Solutions - 'DTS' BCA Specification C3.4 for 'Smoke Doors'
IS0511 & IS8010si – Single Leaf / Single Swing Proprietary or Solid Core Door
IS7071si & IS8020si – Single Leaf / Single Swing Proprietary or Solid Core Door
IS7071si & IS8090si – Single Leaf / Single Swing Proprietary or Solid Core Door
IS0511 & KP3504TF – Single Leaf / Double Swing Proprietary or Solid Core Door
IS0511 & IS0511 & IS8090si – Double Leaf / Single Swing Proprietary or Solid Core Door
IS7071si & IS7071si & IS5111si – Double Leaf / Double Swing Proprietary or Solid Core Door
Additional Smoke Door Sealing Solutions - Ambient Temperature (Tested to AS1530 Part 7)
KP2512BW & IS8005si – Single Leaf / Single Swing Proprietary Door
IS1515 & IS8010si – Single Leaf / Single Swing Proprietary Door
IS0511 & IS7061 & KP3504TF & IS4130 – Double Leaf / Single Swing Proprietary Door
IS7110si & IS8010si – Single Leaf / Single Swing Solid Core Door
Additional Smoke Sealing Systems - With 'No' Specified Criteria
IS1212 & IS8010si – Single Leaf / Single Swing Solid Core Door
IS7025si & IS8035si – Single Leaf / Single Swing Solid Core Door
IS7080si & IS8020si – Single Leaf / Single Swing Solid Core Door
IS7195si & IS8520si – Single Leaf / Single Swing Solid Core Door
IS7080si & IS7060si & IS8090si – Double Leaf / Single Swing Solid Core Door
IS7310si & IS7320si & IS7330si – Double Leaf / Double Swing Glazed Door

- ✓ *Beyond the tested systems, Kilargo seals may be substituted across various doors to suit the application. For 'deemed-to-satisfy' BCA Specification C3.4 requirements, the seals must be fitted to the 'door leaves' (unless otherwise tested) in order to comply.*
- ✓ *Additional sealing combinations may also be utilised outside the tested systems. Please contact our Technical Department for further advice.*

Sealing Solutions for Door Assemblies in Bushfire Prone Areas

After the significant bushfires in Canberra in 2003, the Australian Standard relating to building in bushfire prone areas was revised and a new Australian Standard (AS 3959) was drafted.

In the wake of the devastating Victorian bushfires in February 2009, this Standard was extensively reviewed, providing clearer guidance on the construction requirements for buildings in bushfire prone areas. The aim of the new building standard is to improve the ability of buildings to withstand a bushfire attack. This will provide greater protection for any occupants who may be sheltering in dwellings until the fire front passes, also increasing the chances of a building surviving a bushfire attack.

Sealing Solutions for Door Assemblies in Bushfire Prone Areas cont'd

A great deal of scientific modelling has gone into the new building Standard AS3959-2009 (Construction of buildings in bushfire-prone areas). The chart below highlights the control data, which is defined as a Bushfire Attack Level (BAL). This determines the type of building construction required in bushfire prone areas in order to improve their resistance to bushfire attack from burning embers, radiant heat, or flames generated by a bushfire.

Bushfire Attack Level (BAL)	Description of predicted bushfire attack and levels of exposure
BAL-LOW	The risk is considered to be VERY LOW. There is insufficient risk to warrant specific construction requirements.
BAL-12.5	The risk is considered to be LOW. There is a risk of ember attack.
BAL-19	The risk is considered to be MODERATE. There is a risk of ember attack and burning debris ignited by wind-borne embers and a likelihood of exposure to radiant heat.
BAL-29	The risk is considered to be HIGH. There is an increased risk of ember attack and burning debris ignited by wind-borne embers and a likelihood of exposure to an increased level of radiant heat.
BAL-40	The risk is considered to be VERY HIGH. There is a much increased risk of ember attack and burning debris ignited by wind-borne embers, a likelihood of exposure to a high level of radiant heat and some likelihood of direct exposure to flames from the fire front.
BAL-FZ	The risk is considered to be EXTREME. There is an extremely high risk of ember attack and burning debris ignited by wind-borne embers, and a likelihood of exposure to an extreme level of radiant heat and direct exposure to flames from the fire front.

The BAL takes into consideration a number of factors including the Fire Danger Index, the slope of the land, types of surrounding vegetation and its proximity to any building.

The Fire Danger Index is a measure of the associated fire weather and the probability of a bushfire starting. It also includes its rate of spread, intensity and difficulty of suppression according to various combinations of temperature, relative humidity, wind speed and estimate of fuel state, all of which is influenced by daily rainfall and the time elapsed since the last rainfall.

Bushfire Protection Levels / Minimum Seal Requirements as per AS3959 BAL Classifications

BAL (Bushfire Attack Level)	Vehicle Access Doors (Garage Doors)	Sliding Doors	Side-Hung External Doors, incl. French Doors, Panel-fold & Bi-fold Doors
BAL-LOW	AS3959 does not provide construction requirements for buildings assessed in bushfire-prone areas in accordance with Section 2 as being BAL-LOW.		
BAL-12.5	Panel-lift, tilt doors or side-hung doors shall be fitted with suitable weather strips, draught excluders, draught seals or guide tracks, as appropriate to the door type, with a maximum gap no greater than 3mm. Roller Doors shall have guide tracks with a maximum gap no greater than 3mm and shall be fitted with a nylon brush that is in contact with the door.	Sliding doors shall be tight-fitting in the frames and comply with AS3959 Clause 5.5.4	Doors shall be tight-fitting to the door frame. Weather strips, draught excluders or draught seals shall be installed at the base of side-hung external doors.
BAL-19	Panel-lift, tilt doors or side-hung doors shall be fitted with suitable weather strips, draught excluders, draught seals or guide tracks, as appropriate to the door type, with a maximum gap no greater than 3mm. Roller Doors shall have guide tracks with a maximum gap no greater than 3mm and shall be fitted with a nylon brush that is in contact with the door.	Sliding doors shall be tight-fitting in the frames and comply with AS3959 Clause 6.5.4	Doors shall be tight-fitting to the door frame. Weather strips, draught excluders or draught seals shall be installed at the base of side-hung external doors.
BAL-29	Panel-lift, tilt doors or side-hung doors shall be fitted with suitable weather strips, draught excluders, draught seals or guide tracks, as appropriate to the door type, with a maximum gap no greater than 3mm. Roller Doors shall have guide tracks with a maximum gap no greater than 3mm and shall be fitted with a nylon brush that is in contact with the door.	Sliding doors shall be tight-fitting in the frames and comply with AS3959 Clause 7.5.4	Weather strips, draught excluders or draught seals shall be installed at the base of side-hung external doors.
BAL-40	Panel-lift, tilt doors or side-hung doors shall be fitted with suitable weather strips, draught excluders, draught seals or guide tracks, as appropriate to the door type, with a maximum gap no greater than 3mm. Roller Doors shall have guide tracks with a maximum gap no greater than 3mm and shall be fitted with a nylon brush that is in contact with the door.	Sliding doors shall be tight-fitting in the frames. Seals shall be installed to stiles, head and sills or thresholds, and shall be manufactured from silicone rubber.	For side-hung external doors, weather excluders or draught seals shall be installed at the base. Seals to stiles, head and sills or thresholds shall be manufactured from silicone rubber.
BAL-FZ	Panel-lift, tilt doors or side-hung doors shall be fitted with suitable weather strips, draught excluders, draught seals or guide tracks, as appropriate to the door type, with a maximum gap no greater than 3mm. Roller Doors shall have guide tracks with a maximum gap no greater than 3mm and shall be fitted with a nylon brush that is in contact with the door.	All sliding doors shall be tight-fitting in the frame. Sliding door systems shall have an FRL of at least -/30/-, or comply with AS1530.8.2	Side-hung external doors, including French doors, panel-fold and bi-fold doors, shall have an FRL of at least -/30/-, or comply with AS1530.8.2 Doors shall be tight-fitting to the frame. Weather strips, draught excluders or draught seals shall be installed at the base of side-hung external doors. Seals shall not compromise the FRL or the performance achieved in AS1530 Part 4.

From the above classifications, Kilargo can recommend the following suitable product solutions for each Bushfire Attack Level.
Alternate product solutions may also be utilised. Please contact Kilargo for these alternative options.

Note: *The following solutions are given in good faith as guidance for varying applications in bushfire prone areas. Please consult the latest version of AS3959 for your specific requirements under this Standard.*

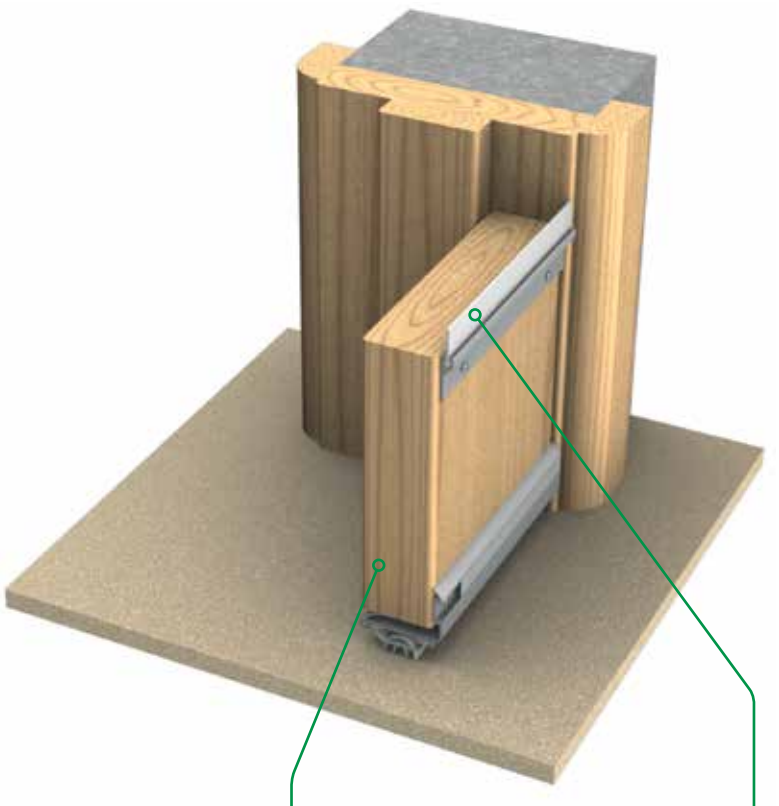
Side-hung External Door

IS5111si, IS3070si

Application: This sealing combination is compliant with AS3959 as a suitable sealing solution for side-hung external doors in bush-fire risk areas.

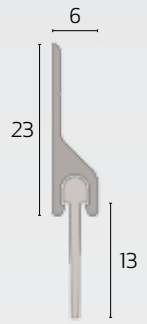
The door should be made from a non-combustible material (or otherwise compliant with the relevant BAL Standard clause) and be tight-fitting in its frame.

Door frames shall be constructed from metal or a bush-fire resistant timber.

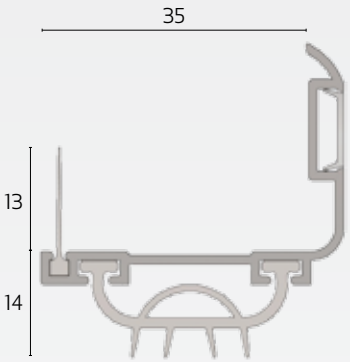


Minimum 35mm thick solid core door shown fitted within a bush-fire resistant timber frame.

The IS5111si is shown fitted the head of the door leaf. This may also be fitted to the door stiles for a total perimeter sealing solution.



IS5111si silicone sweep seal – A slim-line, medium duty, sweep action silicone seal, with a 13mm silicone blade within an angled, aesthetically designed aluminium carrier. This seal can be screw-fixed to the head (and perimeter) of the door.



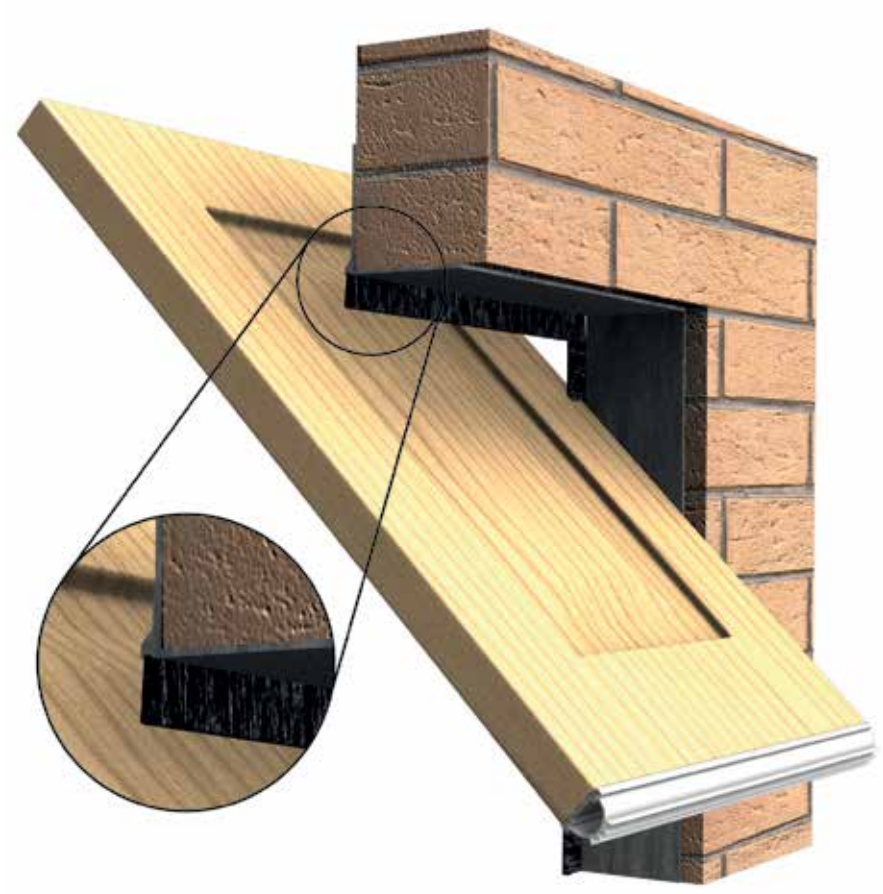
IS3070si door bottom seal – A weather resistant door bottom seal, providing effective containment against ambient temperature smoke, dust, light, insects and weather. This seal is screw-fixed to the metal roller door bottom. The PVC cover strip conceals the screw line.

Tilt-Panel or Panel-Lift Garage Door

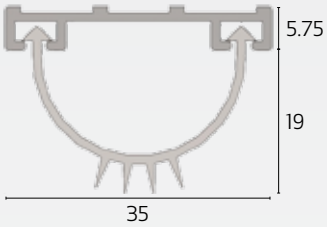
IS5120, IS3021si

Application: This sealing combination is compliant with AS3959 as a suitable sealing solution for tilt-panel vehicle access doors (garage doors).

The door should be made from a non-combustible material, bushfire-resistant timber or have a minimum 6mm fibre-cement sheet applied to the door material. The maximum gap around the door perimeter can be no greater than 3mm.



IS5120 brush seal – 25mm nylon brush seal mounted in an aluminium housing, screw fixed to the head and stiles of the steel angle surround.



IS3021si door bottom seal – A weather resistant, silicone door bottom seal providing effective containment from ember attack, ambient temperature smoke, dust, light, insects and weather. This seal is screw-fixed to the underside of the door panel.

Side-hung External Bi-Fold Door

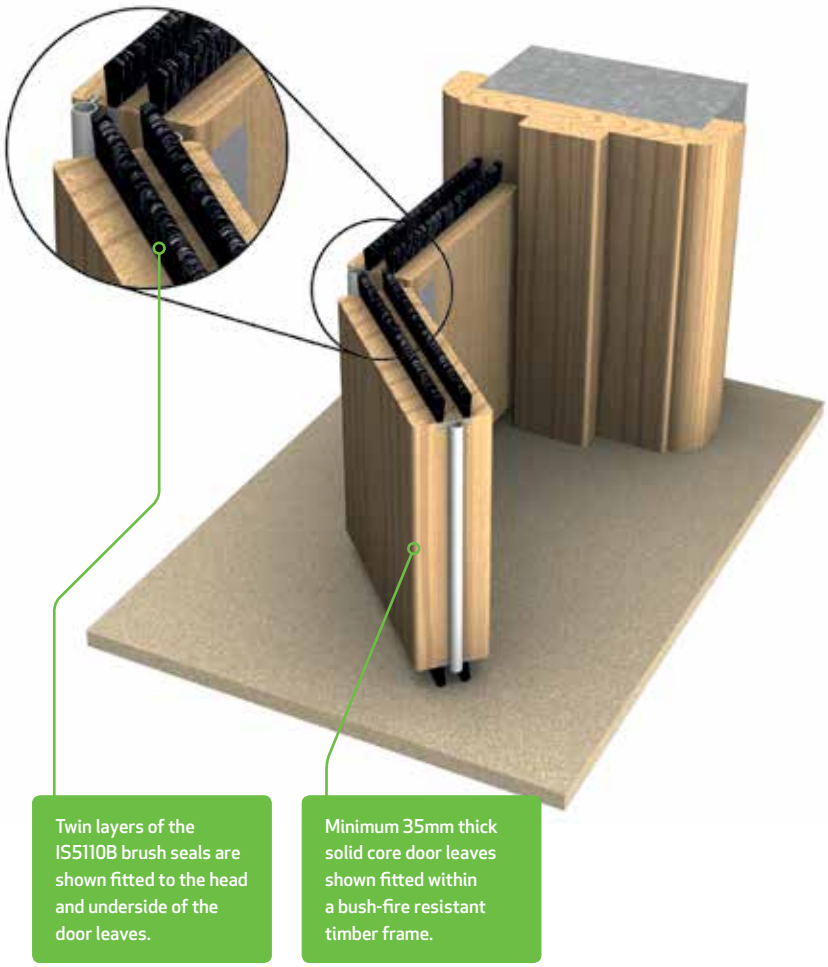
IS5110B, IS1006si

Application: This sealing combination is compliant with AS3959 as a suitable sealing solution for side-hung external bi-fold doors in bush-fire risk areas with a Bushfire Attack Level 29.

The door should be made from a non-combustible material (or otherwise compliant with the relevant Standard AS3959 Part 7.5.3) and be tight-fitting in its frame.

Door frames shall be constructed from metal or a bush-fire resisting timber. Where doors incorporate glazing, the glazing shall be toughened glass minimum 6mm thick.

✓ *Shutters or appropriate screens may also be required as per the relevant Standard requirements.*



Twin layers of the IS5110B brush seals are shown fitted to the head and underside of the door leaves.

Minimum 35mm thick solid core door leaves shown fitted within a bush-fire resistant timber frame.

IS5110B brush seal – A 13mm nylon brush seal recessed into nominal 4mm x 3mm grooves mounted to the head and bottom of each door panel.

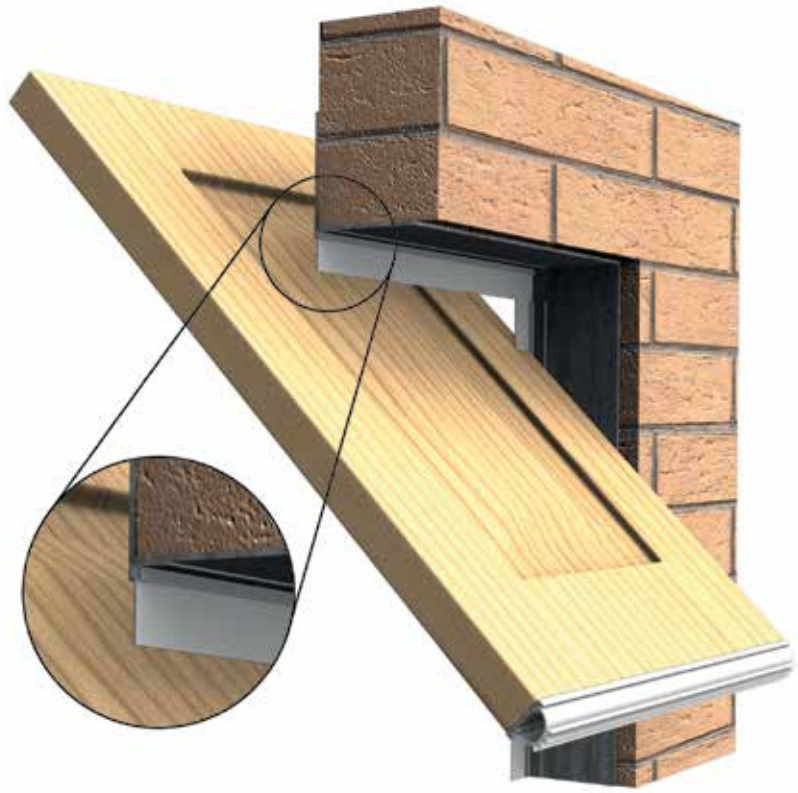
IS1006si silicone compression seal – A weather-resistant, silicone bubble seal, recessed into the stiles of each door leaf. This durable compression seal provides effective containment from ember attack, ambient & medium temperature smoke, dust, light, insects and weather.

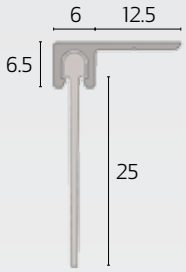
Tilt-Panel or Panel-Lift Garage Door

IS5161Hsi, IS3021si

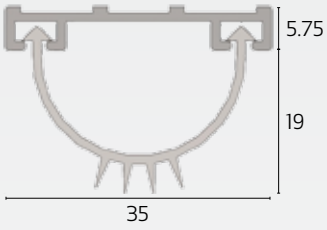
Application: This sealing combination is compliant with AS3959 as a suitable sealing solution for tilt-panel vehicle access doors (garage doors) with a Bush-fire Attack Level of 40.

The door should be made from a non-combustible material. The maximum gap around the door perimeter can be no greater than 3mm.





IS5161Hsi silicone sweep seal – These silicone blade seals have a 90° aluminium carrier, and can be fitted with either 13mm, 19mm or 25mm silicone blades. These seals are screw fixed to the head and stiles of the steel angle surround.



IS3021si door bottom seal – A weather resistant, silicone door bottom seal providing effective containment from ember attack, ambient temperature smoke, dust, light, insects and weather. This seal is screw-fixed to the underside of the door panel.

Side-hung External Door

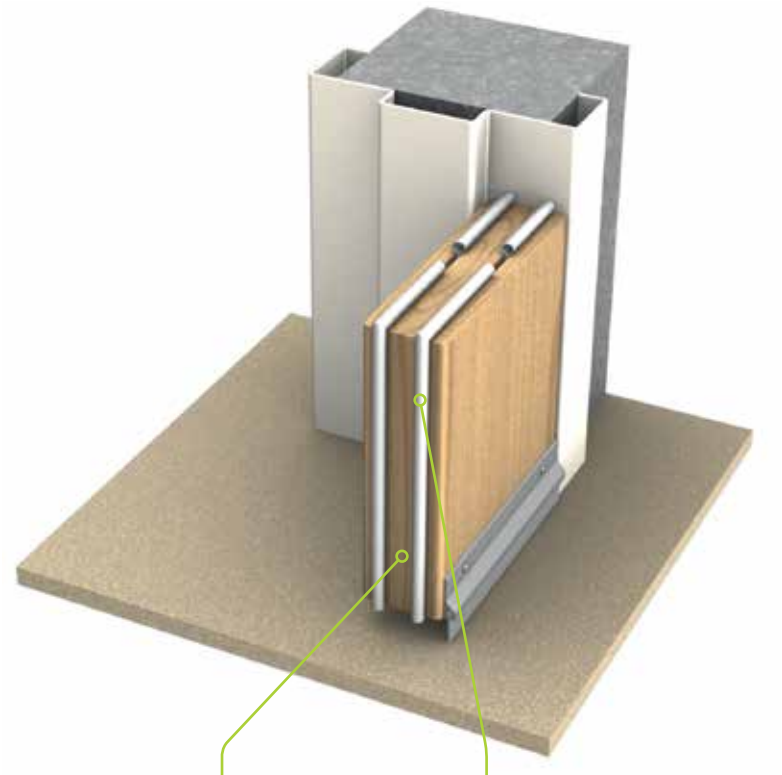
IS1006si, IS5111si

Application: This sealing combination is compliant with AS3959 as a suitable sealing solution for side-hung external doors in bush-fire risk areas with a Bushfire Attack Level of 40.

The door should be made from a non-combustible material (or otherwise compliant with AS3959 Part 8.5.3).

Door frames shall be constructed from metal and doors shall be tight-fitting to the door frame.

The seals fitted to stiles, head and thresholds shall be manufactured from silicone or a material with a flammability index no greater than 5.

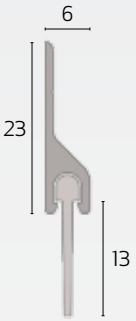


Minimum 35mm thick solid core door shown fitted within a steel frame.

Two layers of the IS1006si silicone compression seal are shown fitted to the head & stiles of the door leaf.

As an option to the IS1006si compression seal, the Kilargo IS1002si silicone fin seals can also provide an excellent alternate solution rebated into the door leaf perimeter.

IS1006si silicone compression seal – A weather-resistant, silicone bubble seal, recessed into the head & stiles of the door leaf. This durable compression seal provides effective containment from ember attack, ambient & medium temperature smoke, dust, light, insects and weather.



IS5111si silicone sweep seal – A slim-line, medium duty, sweep action silicone seal, with a 13mm silicone blade within an angled, aesthetically designed aluminium carrier. This seal is easily screw-fixed to the bottom of the door.

External Sliding Doors

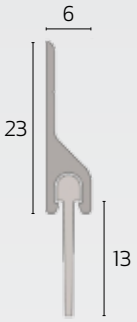
IS5111si

Application: This sealing combination is compliant with AS3959 as a suitable sealing solution for an external sliding door in a bush-fire risk area with a Bushfire Attack Level of 40.

The door should be constructed so that it complies with AS3959 Part 8.5.4) and be tight-fitting in its frame.

Both the sliding door frame and framing surrounding any glazing shall be metal. Where sliding doors incorporate any glazing, the glazing shall be toughened glass of minimum 6mm thick. Both the fixed and openable portions of the doors shall also be fitted with screens that comply with Clause 8.5.1A.

The seals fitted to stiles, head and thresholds shall be manufactured from silicone or a material with a flammability index no greater than 5.



IS5111si silicone sweep seal – A slim-line, medium duty, sweep action silicone seal, with a 13mm silicone blade within an angled, aesthetically designed aluminium carrier. This seal is easily screw-fixed to the head, stile and bottom of the openable door panel.

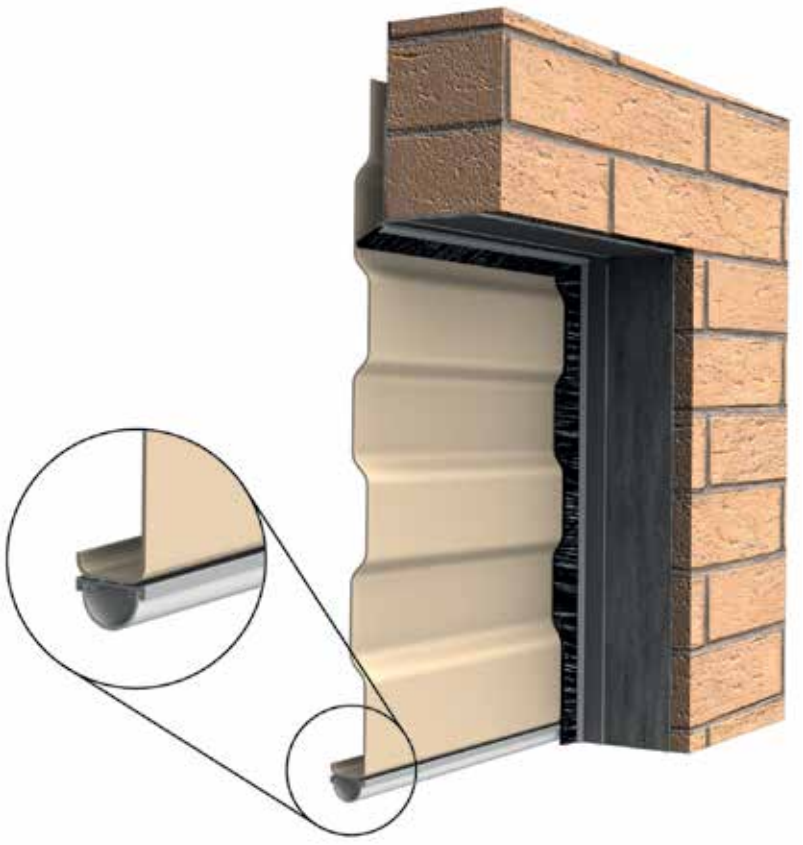
Metal Garage Roller Door

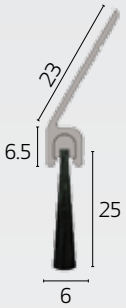
IS5175A, IS3020si

Application: This sealing combination is compliant with AS3959 as a suitable sealing solution for metal roller vehicle access doors (garage doors) with a Bush-fire Attack Level FZ, providing effective resistance to ember attack.

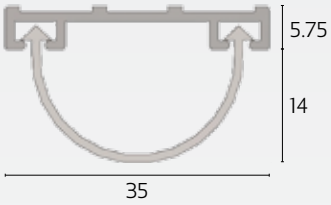
The door should be made from a non-combustible material and have roller guide tracks with a maximum gap no greater than 3mm.

✓ *Additional requirements apply where the garage is attached to the building.*





IS5175A nylon brush seal – This sweep action seal is designed with a 45 degree angled aluminium carrier, housing a 25mm length nylon brush seal. These seals are screw-fixed to the head & stiles of the steel lintel surround, with the nylon brush/bristles sealing against the roller door face.



IS3020si door bottom seal – A weather resistant, silicone door bottom seal providing effective containment from ember attack, ambient temperature smoke, dust, light, insects and weather. This seal is screw-fixed to the underside of the door panel.

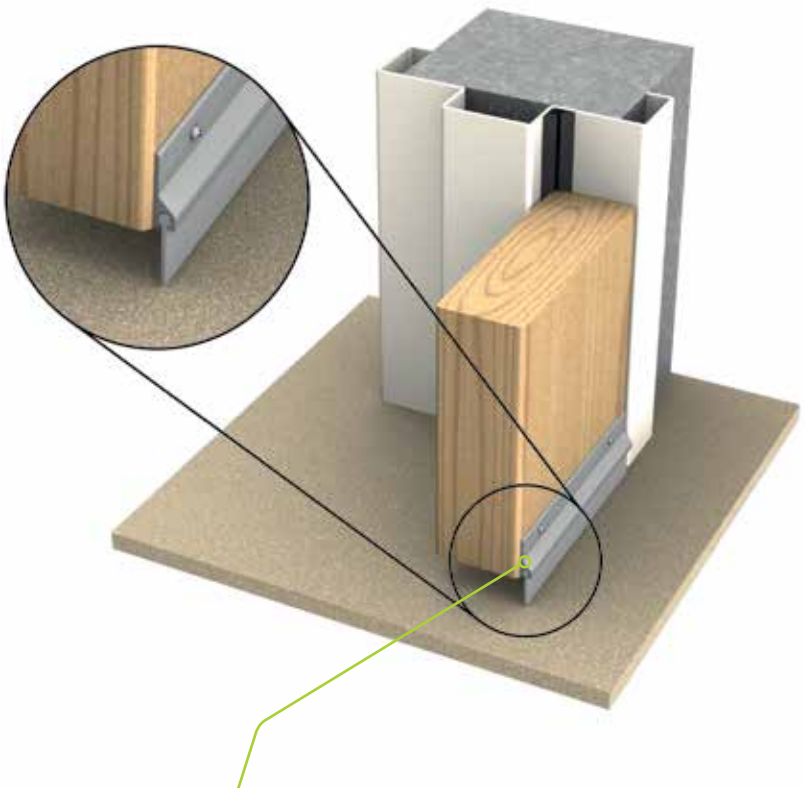
Side-hung External Door (Min. 30 minute proprietary fire door in a steel frame)

IS1212, IS5111si

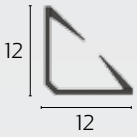
Application: This sealing combination is compliant with AS3959 as a suitable sealing solution for side-hung external doors in bush-fire risk areas with a Bushfire Attack Level FZ classification.

The door shall have an FRL of at least -/30/-, or comply with AS1530.8.2 (when tested from the outside).

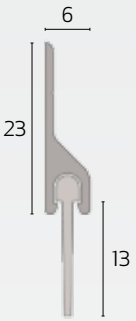
Doors shall be tight-fitting to the frame and the seals shall not compromise the FRL of the door assembly performance achieved under AS1530.4.



The IS1212 perimeter seal is fitted to the head & stiles of the door perimeter, with the IS5111si fitted to the door bottom.



IS1212 perimeter seal – (12mm x 12mm) Retrofit, self-adhesive seal with proven smoke & acoustic performance on proprietary fire door assemblies.



IS5111si silicone sweep seal – A slim-line, medium duty, sweep action silicone seal, with a 13mm flexible silicone blade within an angled, aesthetically designed aluminium carrier. This seal is easily screw-fixed to the bottom of the door leaf.

Catalogue Index

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