



Your Guide to Alumina



Introduction

The Alumina bi-folding door system is a true aluminium bi-fold that offers an exact match to the sculptured Liniar window system as well as a matching foiled finish – with the highest thermal efficiency.

A brand new concept within the industry, Alumina enables consumers to choose energy efficient and cost effective PVCu windows combined with a true aluminium bi-fold door, safe in the knowledge that everything will match. No need for consumers to buy expensive aluminium windows – Alumina opens up new options.

This guide is intended to give you all the information you need in order to understand the system and the options available – and to help your customers choose Alumina for their aluminium bi-fold needs.



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Frame colour options

Alumina doors are supplied as standard in plain white, black or grey powder coated finishes*. Alumina bi-folds can also be ordered with a wide range of different coloured precision factory-fitted foils, ensuring a perfect match to Linar PVCu windows.

Foil or Paint Colour



Substrate Colour

Stocked Power Coat Finishes (Both Faces)



White (Gloss)
Closest RAL: N/A



Black (Matt)
Closest RAL: N/A



Grey (Matt)
Closest RAL: N/A

Stocked Foiled Finishes (Both Faces)



Irish Oak Foil
Closest RAL: N/A



Golden Oak Foil
Closest RAL: N/A



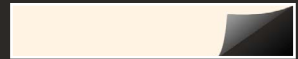
Rosewood Foil
Closest RAL: N/A



Grey Foil
Closest RAL: 7016



Black Foil
Closest RAL: 8022

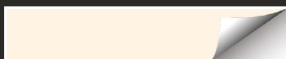


Cream Foil
Closest RAL: 9001



White Foil
Closest RAL: 9010

Stocked Foiled Finishes (External Face Only)



Cream Foil
Closest RAL: 9001



Chartwell Green Foil
Closest RAL: N/A



Golden Oak Foil
Closest RAL: N/A



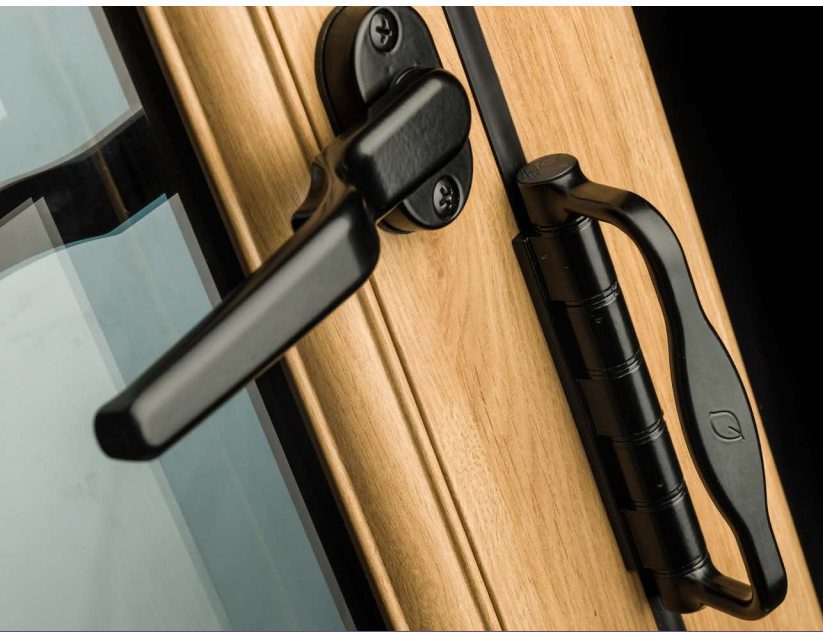
Rosewood Foil
Closest RAL: N/A



Grey Foil
Closest RAL: 7016



Black Foil
Closest RAL: 8022



Hardware colour options

Handles



White



Gold



Black



Chrome



Dark Chrome

Hinges and Rollers



White



Gold



Black



Chrome

Threshold options

All Alumina bi-folding doors are available with many different threshold options, giving your customers the ultimate choice, including a wheelchair-friendly Part M compliant low threshold. Please ensure your customer is aware of the benefits and limitations of each of the options, as detailed below and opposite.

If you need assistance with the technical specifications of each of the threshold options, please contact the Design & Development team on 01332 883900.

You can download an A3 PDF wall chart from the Alumina website:

www.alumina.liniar.co.uk/downloads

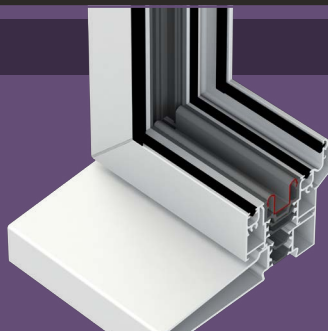
Frame Only (ABF091)

- 62mm high
- Rebated threshold provides optimum weather performance
- Face drained only



Frame and 150mm Cill (ABF091 & ASL150)

- 92mm high
- Rebated threshold provides optimum weather performance
- Common threshold option for most building types





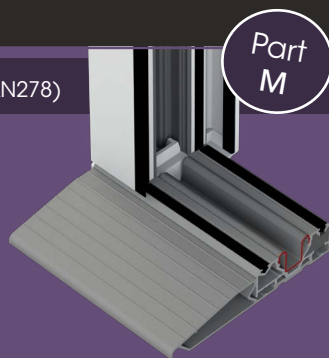
Low Threshold (MBF291T)

- 23.5mm high
- Minimises trip hazards; ideal for general family use.
- Requires no trench excavation so is simple to install.



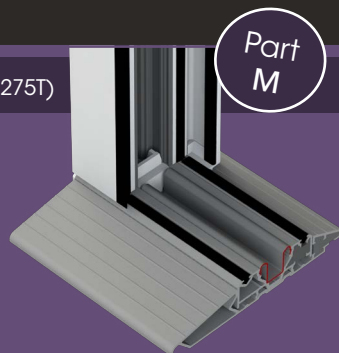
Low Threshold & Half Ramp (MBF291T & LAN278)

- 26.5mm high
- Enables the interior flooring to be fitted flush to the doors
- Requires no trench excavation so is simple to install



Low Threshold & Full Ramp (MBF291T & LAN275T)

- 26.5mm high
- Makes the low threshold Part M compliant for wheelchair access
- Requires no trench excavation so is simple to install



Accreditations

Alumina bi-folding doors have been subjected to rigorous testing and have been confirmed as satisfying the demanding requirements of PAS:24 and Secured by Design, for your customers' peace of mind.

The innovative, patented thermal polyamide locking mechanism included in every Alumina door helps with thermal efficiency and has been certified by independent third party testing to meet these strict security requirements.



PAS:24 & Part Q

Part Q regulations introduced in 2015 state that all new ground floor dwellings and flats, together with new extensions, must meet strict criteria: "provision must be made to resist unauthorised access to any dwelling".

In essence, doors must be "manufactured to a design that has been shown by test to meet the security requirements of British Standards PAS:24:2012" – so as the Alumina bi-fold has already been accredited with this standard, they are fully Part Q compliant.

Quality assured

All of Linia's operations have been assessed by the British Standards Institute and confirmed to meet the exacting requirements of ISO:9001 so you can be assured that your foiled pre-fabricated Alumina doors will be manufactured to the highest standards.

Each set of bi-folds is lovingly hand crafted and checked by a quality testing team before being despatched to you.

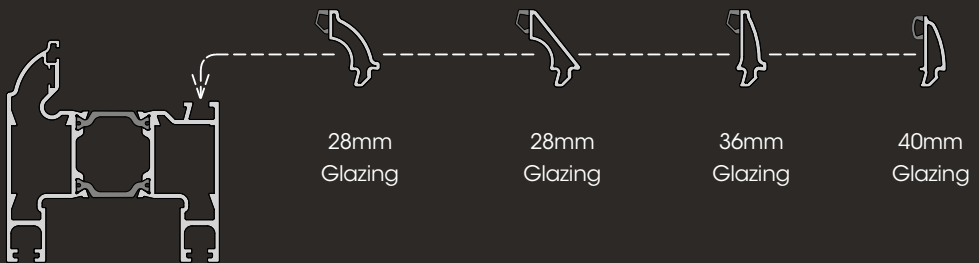
Mating PVCu products

Mating PVCu components should only be selected when the aluminium product and PVCu products are both fully foiled.

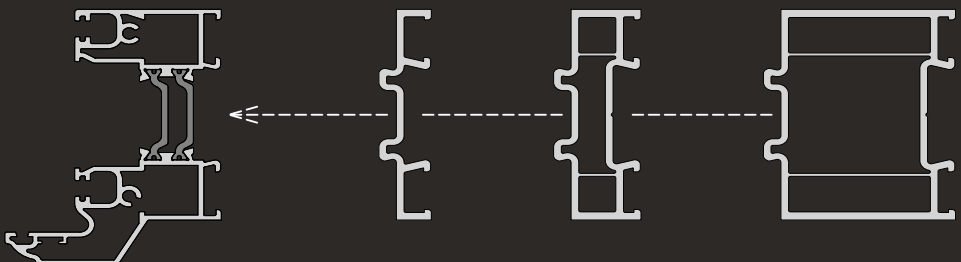
All foiled Alumina door sets will be supplied with matching PVCu beads. In addition you can select from Liniar's extensive range of ancillaries including add-ons, head vents and structural joints.

By using foiled PVCu components, you can ensure your stock levels are kept lower as they are common across the window and door range.

In addition, PVCu beads are more flexible than aluminium, meaning less potential for damage, unlike more traditional shuffle beads which are liable for damage when installed. Additional benefits, mean the bi-fold doors are faster to glaze and easier for the fitter to handle.



PVCu Glazing Beads



PVCu Add-Ons

Size limitations

The minimum & maximum sash sizes are shown below for the Alumina bi-fold door system.

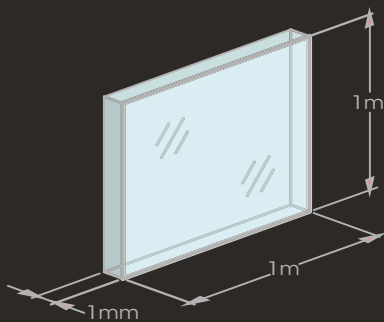
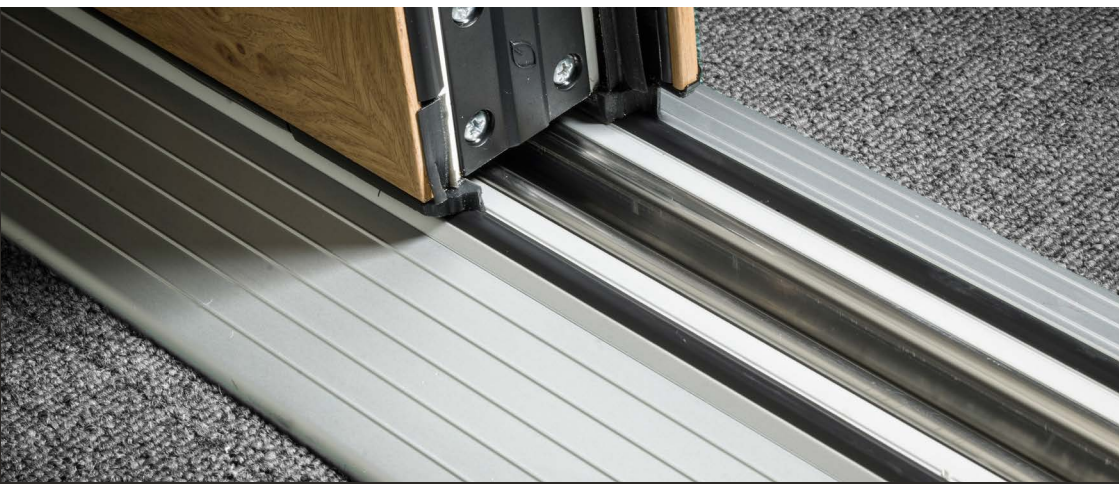
These have been calculated for sashes manufactured to the size limitations and glazed with different glass combinations.

Maximum 6-6-0 outer frame = 6m

Minimum 2-2-0, 4-4-0, 6-6-0 sash size = 700mm

Glazed Unit Double Glazing (20kg/m²)

Sash Weight (kg)		Sash Width (mm)												
		500	600	700	750	800	850	900	950	1000	1050	1100	1150	1200
Sash Height (mm)	2500	25.0	30.0	35.0	37.5	40.0	42.5	45.0	47.5	50.0	52.5	55.0	57.5	60.0
	2450	24.5	29.4	34.3	36.8	39.2	41.7	44.1	46.6	49.0	51.5	53.9	56.4	58.8
	2400	24.0	28.8	33.6	36.0	38.4	40.8	43.2	45.6	48.0	50.4	52.8	55.2	57.6
	2350	23.5	28.2	32.9	35.3	37.6	40.0	42.3	44.7	47.0	49.4	51.7	54.1	56.4
	2300	23.0	27.6	32.2	34.5	36.8	39.1	41.4	43.7	46.0	48.3	50.6	52.9	55.2
	2250	22.5	27.0	31.5	33.8	36.0	38.3	40.5	42.8	45.0	47.3	49.5	51.8	54.0
	2200	22.0	26.4	30.8	33.0	35.2	37.4	39.6	41.8	44.0	46.2	48.4	50.6	52.8
	2150	21.5	25.8	30.1	32.3	34.4	36.6	38.7	40.9	43.0	45.2	47.3	49.5	51.6
	2100	21.0	25.2	29.4	31.5	33.6	35.7	37.8	39.9	42.0	44.1	46.2	48.3	50.4
	2050	20.5	24.6	28.7	30.8	32.8	34.9	36.9	39.0	41.0	43.1	45.1	47.2	49.2
	2000	20.0	24.0	28.0	30.0	32.0	34.0	36.0	38.0	40.0	42.0	44.0	46.0	48.0
	1950	19.5	23.4	27.3	29.3	31.2	33.2	35.1	37.1	39.0	41.0	42.9	44.9	46.8
	1900	19.0	22.8	26.6	28.5	30.4	32.3	34.2	36.1	38.0	39.9	41.8	43.7	45.6
	1850	18.5	22.2	25.9	27.8	29.6	31.5	33.3	35.2	37.0	38.9	40.7	42.6	44.4



Glass weight per m²

1mm thickness of glass weighs 2.5kg/m²

To calculate the weight per m² of a glazed unit, add up the total thickness of glass.

e.g. 8.4 - 14.6 = 8mm + 6mm of glass (14mm)

Multiply the total glass thickness by 2.5kg/m²

e.g. 14 x 2.5 = 35kg/m²

This is the glazed unit weight per m²

The following formula can now be used to calculate the sash weight

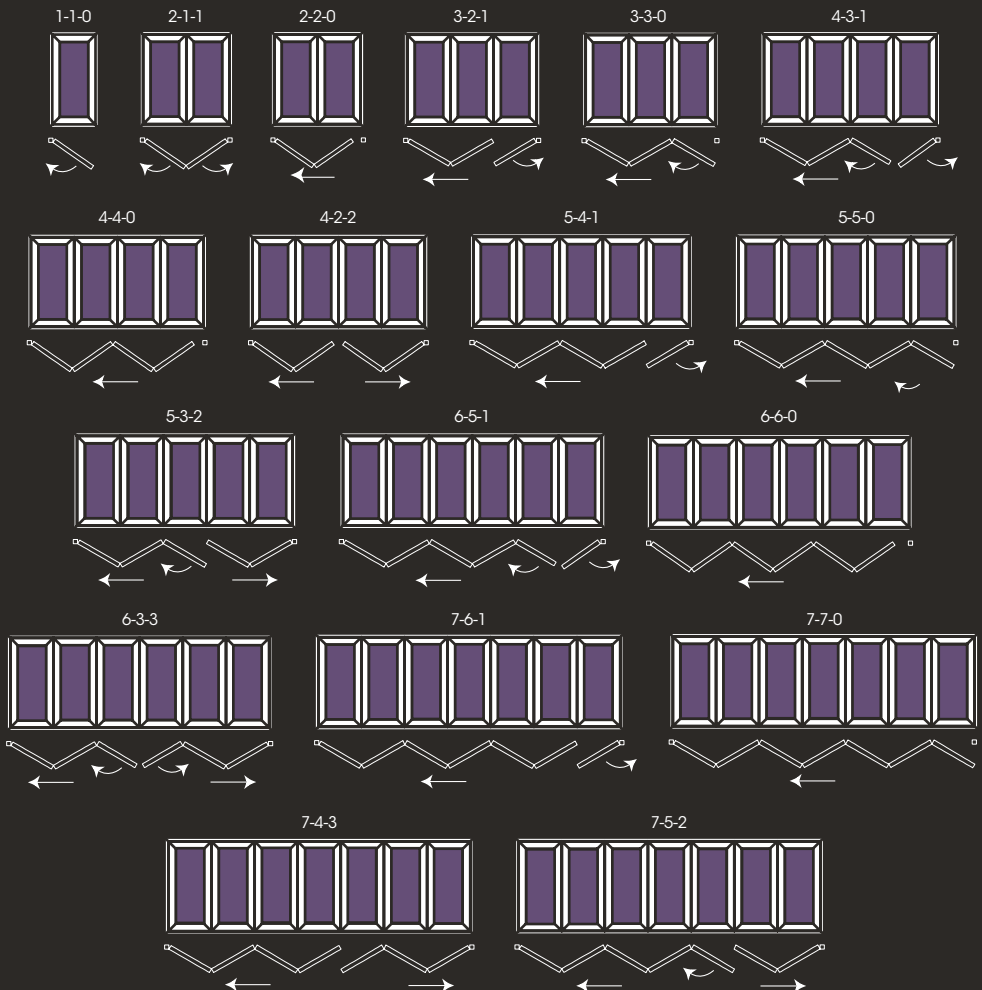
Any glazing combination used must not exceed the maximum sash weight of 60kg

Sash weight (kg) = glass weight/m² (kg) x (sash width (m) x sash height (m))

Door styles

The Alumina bi-folding door range has a wide variety of options when it comes to sizes and opening configurations - available from 1 pane wide up to 7 panes. Our door pane numbering works like this:

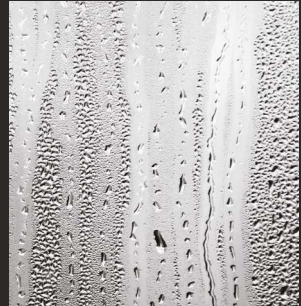
A 4-3-1 bi-folding door would be four panes wide, with three doors folding back to one side and a single opening door on the other.



Weather performance

The Alumina bi-folding door from Linar has been tested at its maximum door size with thermally broken low threshold, achieving incredible results.

The 2.5m x 1.2m aluminium sash bi-fold was found to beat the minimum requirements for both air and water tightness by more than double the most severe pressures within BS6375 Part 1 – even with a low threshold; unusual for a bi-fold of this size.



Linar classes the following as “severe weather performance”:

- Coastal locations (<1km to sea level)
- Elevated locations (>100m above sea level)
- Exposed locations (long stretches of open level country)

When an installation falls within the category of “severe”, Linar recommends:

- Open out only door configurations
- Rebated frame threshold (ABF091)
- Consult Linar technical/design & development for enhanced gasket configurations.

Thermal performance

Alumina bi-folds can achieve a U-value as low as 1.2 W/m²K with triple glazing.

Other combinations of glazing can be used – please see table below for an indication of the U-values achievable with different options.

Glazing	Glazing Centre Pane U-Value	Spacer Bar	Gas	Door Whole U-Value
4-20-4	1.1	Warm Edge	Argon	1.5
4-20-4	1.2	Warm Edge	Argon	1.6
4-12-4-12-4	0.7	Warm Edge	Argon	1.3
4-14-4-14-4	0.6	Warm Edge	Argon	1.2

Guaranteed

Alumina bi-folds are covered by a 10-year guarantee, along with the rest of the Liniar range, ensuring that the customer has a single point of contact for their whole installation when purchasing Liniar windows, doors, conservatories, soffits and fascias.

You can download a copy of the guarantee certificate from the Alumina website:

www.alumina.liniar.co.uk/downloads



Liniar guarantees the performance of its Bi-Fold Door system providing the product(s) comply with all of the following:

Manufacture

Product manufacture must comply with the latest issue of the Liniar 'Alumina Bi-Fold Fabrication Manual' at the time of manufacture. Only Liniar parts must be used during manufacture, failure to do this will void all guarantees.

Installation

Installations must comply with all aspects of the latest issue of the 'Alumina Bi-Fold Installation Manual' at the time of installation.

Maintenance

Details regarding required maintenance are specified within the latest version of the 'Alumina Bi-Fold Installation Manual' and must be adhered to at all times after installation.

Alumina Bi-Folding Doors consist of a wide variety of components that cannot be covered under one guarantee and therefore are grouped below into the respective qualifying periods:

Aluminium and PVCu Extrusions - 10 Years

All Aluminium and PVCu extrusions are manufactured using tried and tested formulations from approved suppliers and will not warp, split or discolour.

Moving Parts - 5 Years

All moving parts are guaranteed against failure. Details regarding the correct operational use of the product is documented within the 'Alumina Installation Manual'. Failure due to mishandling will void all guarantees.

Coloured Hardware Finish - 1 Year

The guarantee applies to product finishes for 1 year but does not include faults caused by neglectful damage, excessive wear and tear and situations of atmospheric or installation may lead to accelerated finish breakdown.





Unique Selling Points

- Alumina can be foiled to match their Liniar PVCu windows (any powder coated colour is also available);
- It features the exact same sculptured profile as their Liniar PVCu windows;
- It's more thermally efficient than other aluminium bi-folds, thanks to its innovative thermal lock;
- It can be double glazed (1.5 U-value) or triple glazed (1.2 U-value);
- It has the same beautiful, smooth aesthetics as the Liniar ModLok™ bi-fold and the same attention to detail with folding keys, hidden hinge fixings and discreet magnets;
- It can span openings up to 6.5m wide with sashes up to 2.5m high;
- Alumina doors are fully tested for Secured by Design and accredited to PAS24 standards;
- You can offer a single point of guarantee for a full Liniar installation;
- It's easier for installers to bead after glazing when foiled, as beads are supplied in flexible PVCu.

Marketing support

In order to help you to sell the Alumina door to your customers, Liniar has provided a full set of marketing tools for you to use.

All the literature PDFs can be downloaded from the Alumina website:

www.alumina.liniar.co.uk/downloads



Consumer Brochure



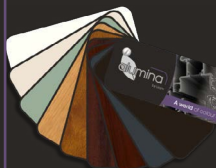
Fact Sheet



Thresh. Wall Chart



Wall Chart



Swatch Booklet



Sales Guide



Operation Flyer



Sample Box



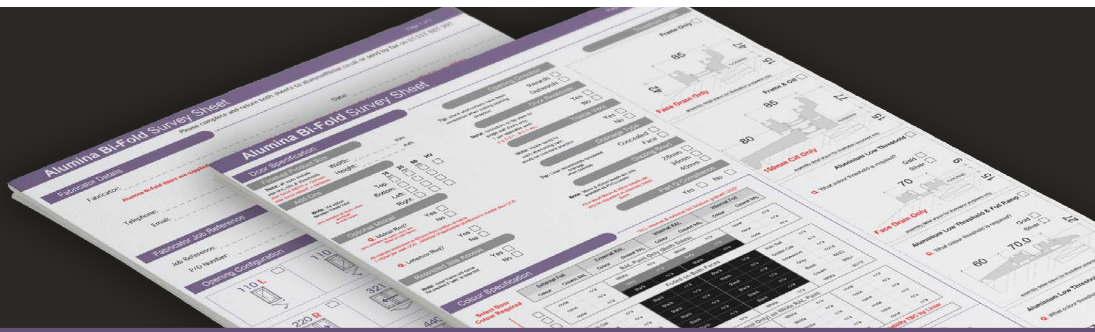
Installation Guide



A1 Poster



Sales Video



How to order

Installers/Non-Linear Fabricators

All Alumina doors should be ordered through a Linear fabricator.

To find your nearest fabricator please visit www.linear.co.uk/find-a-fabricator/

Linear Fabricators

To obtain a quotation for an Alumina bi-fold door, you'll need to complete the Alumina survey form, which can be downloaded from www.alumina.linear.co.uk/surveyform.

Please email your completed form to alumina@linear.co.uk (form will only be accepted from Linear fabricators). Please note that no quotation can be supplied without all fields being completed accurately, as each bi-fold will be made to order. We cannot process a quotation without this form.

Once your form has been received, you will be sent a confirmation email from Linear, advising to which Alumina Approved fabricator the request has been allocated for quotation.

Your accurate quotation will be sent to you by email from the allocated Alumina Approved fabricator within two working days. From this point on, please communicate directly with them.

6 great reasons to choose Alumina

Designed from scratch – The team recognised the need for a pure aluminium bi-fold that fully matched with Linar PVCu windows – so they designed one!

Superior U-values – Alumina offers 'true' U-values as low as 1.2W/m²K, thanks to its innovative thermal lock.

Low threshold – Optional Part M compliant aluminium low threshold is just 23.5mm high at its highest point, requiring no trench excavation.

High security – Alumina ensures the highest security with multiple bi-directional locking points, shootbolts, built-in anti-lift features and anti-bump cylinders.

Foiled or powder coated – Your Alumina bi-fold can either be powder coated, or foiled with any woodgrain finish.

Attention to detail – With innovative features including folding keys, ergonomic handles, hidden fixings for hinges and discreet magnets.

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