



VELFAC

# CATALOGUE

# 2018

January onwards

**VELFAC®**

WINDOWS FOR LIFE

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The information contained in this catalogue is correct at time of print. However, due to our commitment for continuous product improvements, some of these details may change without notice.  
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Cover reference project: Holland Park Avenue, London · Architect: Broadway Malyan

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# FIND EVERYTHING YOU NEED AT **VELFAC.co.uk**

## Your online encyclopædia

Drawings, product information, technical data – find all the information you need on the VELFAC website, including:

- 2D DWG sectional drawings
- 2D DWG installation drawings
- 3D BIM Revit objects

And more information on

- Product portfolios for commercial, housebuilding and domestic projects
- Opening functions
- Minimum / maximum size charts
- Accessories
- Installation and operation
- Maintenance

## Go directly to our product portfolio:

Commercial and Housebuilding projects: [VELFAC.co.uk/commercial/windows-and-doors](http://VELFAC.co.uk/commercial/windows-and-doors)

Domestic projects: [VELFAC.co.uk/domestic/technical](http://VELFAC.co.uk/domestic/technical)



Optimized for laptop,  
tablet and mobile



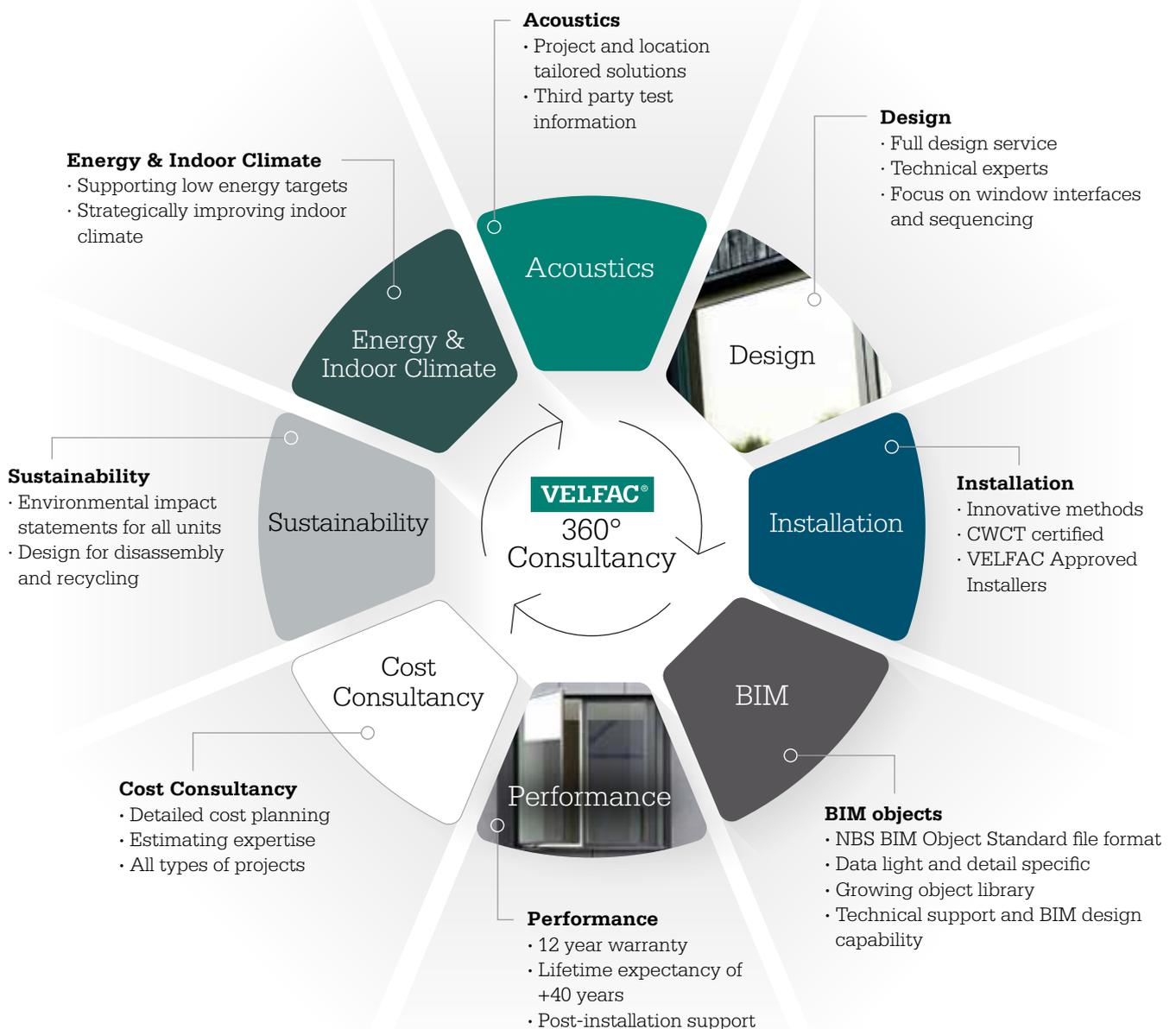
# PROFESSIONAL ADVICE

## – 360 DEGREES CONSULTANCY

At VELFAC we are experts in glazing, and can provide tailored advice and consultancy at every specification stage – from initial design ideas through to post-installation support. Talk to us as soon as your project starts to take shape and use our product knowledge, and our industry expertise, to specify glazing which meets your budget needs, design vision, and performance targets.

**Specification consultants.** We employ a team of dedicated Specification Consultants to support Architects throughout any project. For more details contact 01223 897100 or email [sales-support@VELFAC.co.uk](mailto:sales-support@VELFAC.co.uk)

**CPD from VELFAC.** Learn more about the latest developments in window technology in our programme of accredited seminars. For more information contact [sales-support@VELFAC.co.uk](mailto:sales-support@VELFAC.co.uk).

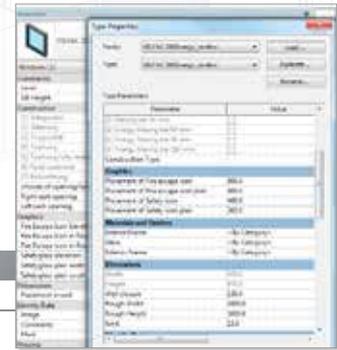




# BIM

Our Design Service operates at BIM level using our revised and **updated BIM models**, now available in **NBS file format**. This results in data-light BIM objects which are easier to use and to manipulate, and which allow a faster comparison across product ranges.

Information linked to each BIM object is also available in factsheet format and covers **product details and benefits**, from U-values to guarantees. We regularly update and extend our **BIM object library** – visit [bimobject.com](http://bimobject.com) to see the full range.

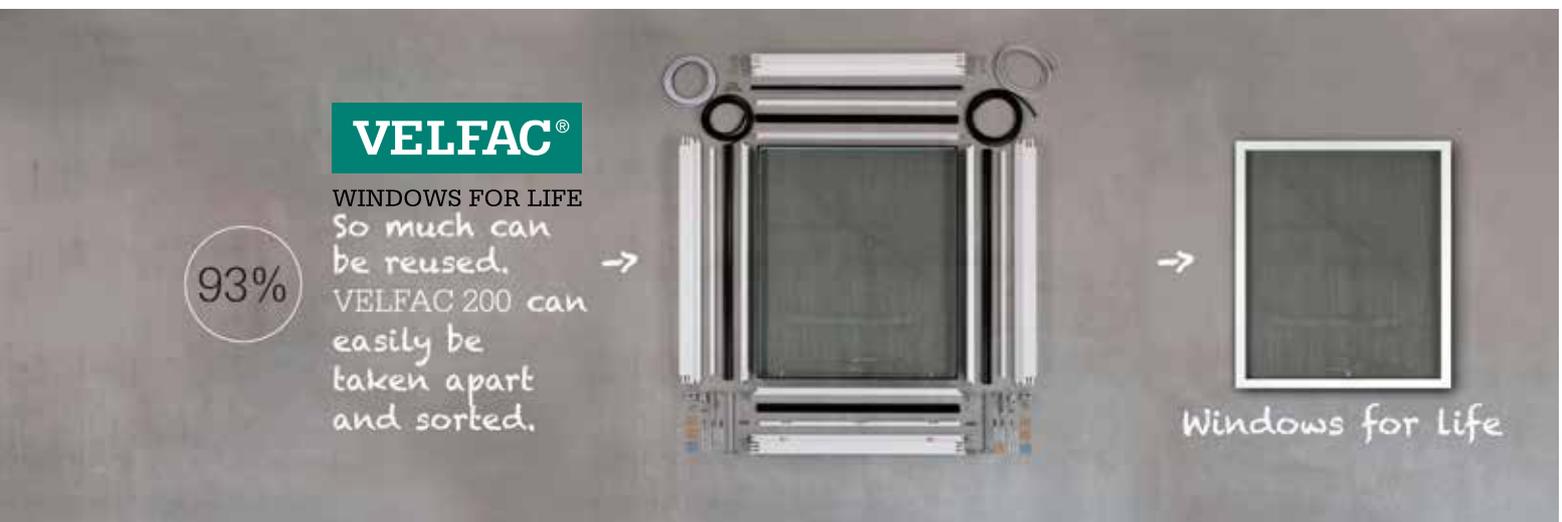


# SUSTAINABILITY

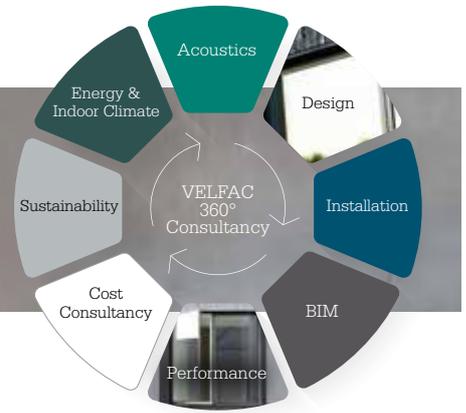
The VELFAC system embodies **sustainable design and manufacture**, with every component of our glazing system chosen to limit our **impact on the environment**.

VELFAC units come with an environmental impact statement which provides proof of **sustainable construction and performance**, from our ISO14001-accredited manufacturing facilities to the use of water-based wood treatments.

Units are also deliberately designed for **disassembly and recycling** – another contribution to a less wasteful society.



# 360 DEGREES CONSULTANCY



## DESIGN

After more than 30 years we are **experts in window design**, and our designers work with architects on projects of every size and type.

We **work closely with project teams** to ensure the VELFAC system meets design goals, both **aesthetically** and regarding **installation and performance**, with a particular emphasis on installation and interface.

Where appropriate, we can offer expertise in **structural engineering** and automated design, and have a team of **technical experts available** to come on-site to ensure design specifications are fulfilled.



## ACOUSTICS

Effective **acoustic control is essential** for any project built near transport routes, on inner-city sites, or to meet high-density specifications, but can also enhance the **performance of any development**.

The ideal solution must be tailored to project need and location – our experts will specify the right glazing to meet acoustic targets, with all units supplied factory finished to **guaranteed performance standards** proven by extensive third party testing.

Standard VELFAC glazed units already **offer impressive acoustic protection**, and we can advise on enhancing performance with additional or different pane combinations, or specialised lamination and coatings, and on how to exploit the VELFAC acoustic trickle vent to maintain ventilation while **minimising noise pollution**.

### Did you know that...

... by involving a consultant at an early stage in the process VELFAC can offer project specific acoustic solutions to ensure technical compliance.

# ENERGY AND INDOOR CLIMATE

As a company committed to sustainable performance, we have developed **impressive in-house expertise** in low energy design and improved indoor climate.

We can advise on the best window configuration to **maximise indoor comfort and energy performance**, and can provide free area calculations for naturally ventilated projects.

We can also show how to use the industry-leading VELFAC design to improve and enhance the indoor climate. Our distinctive frame construction delivers **excellent thermal insulation** - U-values as low as 0.8 W/m<sup>2</sup>K - with no visual compromise, and the stylish slim 54mm sightlines bring significantly **more light into the interior** than traditional alternatives.

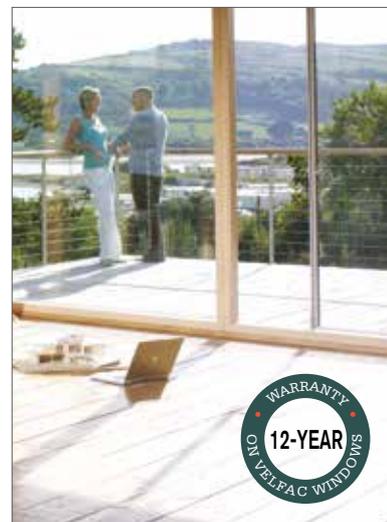


At VELFAC our products are Danish Indoor Climate-labelled. In addition, our products have a long service life, which means that they should not need to be replaced for 40 to 60 years.

# PERFORMANCE

VELFAC units carry a **12 year warranty**, have an **expected product lifetime of +40 years**, and require only minimal maintenance – proof that robust, worry-free performance is built in to every unit we install.

Sustained performance over the longer term is part of our philosophy and vital to our reputation. **We test all our windows and doors excessively** and provide **unique ID tags** for every unit, making service queries and reordering easier. It is also part of our commitment to **long-term post-installation support**.



# WINDOWS FOR EVERY PROJECT

## LEADING EDGE DESIGN AND INDUSTRY EXPERIENCE

**Meeting every project need.** We aim to provide the best window solution at the best price, and can advise on every aspect of window performance, including energy efficiency, security and acoustic control.

**Bespoke design.** VELFAC composite aluminium/wood windows bring real design freedom. Specify different sizes, shapes and opening functions, and combine these within the same facade with no visual compromise.

**Uniform sightlines.** All VELFAC units - fixed, opening, manual and motorised - retain identical sightlines. Create seamless facades, window walling and fully glazed features such as atria or stairwells - and add VELFAC glazed, look-alike, or cedar panels for colour, texture and contrast.

**Quality.** With regular maintenance, VELFAC windows will last for 40 years or more.

**+30 years' experience.** We've been designing and installing composite windows for over 30 years. Our core product range – the VELFAC 200 system – is continuously updated and improved to meet market needs and regulatory demands.

**12 Year warranty** including glazing and all ironmongery. One of the best warranties on the market today - evidence of our confidence in our product range.



National Lottery Award winning  
Observatory at Cors Dyfi Nature Reserve, Wales  
Architect: White Design



Award winning  
Erith Park development, South London  
Architect: Broadway Malyan

## A WINDOW SYSTEM UNDER CONSTANT EVOLUTION

The VELFAC 200 window system is constantly under development in order to meet evolving client demands and to satisfy changing regulations. Our new triple-glazed system - VELFAC 200 ENERGY - combines impressive insulation with strength and durability, while maintaining the clean, crisp sightlines that make VELFAC windows so distinctive.

VELFAC 200 ENERGY windows are based on the same proven construction used to create the VELFAC 200 system, originally launched in 1985. We've spent the last 30 years optimising this market leading design, and our knowledge and experience is evident in the system you see today.

The VELFAC system is available in three versions:

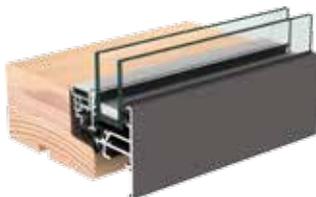
### VELFAC 200 alu, 24mm glazing

- $U_w$ -value: 1.55W/m<sup>2</sup>K
- Double-glazed unit
- Material: aluminium / wood



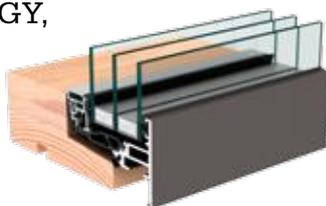
### VELFAC 200i, 24mm glazing

- $U_w$ -value: 1.40W/m<sup>2</sup>K
- Double-glazed unit
- Material: aluminium with thermal break / wood



### VELFAC 200 ENERGY, 48mm glazing

- $U_w$ -value: 0.8W/m<sup>2</sup>K
- Triple-glazed unit
- Material: aluminium with thermal break / wood



# VELFAC DOORS

## SOLUTIONS FOR ALL PURPOSES



### VELFAC aluminium entrance doors

VELFAC 500 entrance doors are designed for installation where reliability, stability and strength of the door are vital.

Typical situations include the main entrance, side entrance or restricted entrance to commercial, residential or public buildings.

VELFAC 500 doors can be coupled with VELFAC 200 windows to create glazed entrance screens or atria.



Glazed entrance doors



### VELFAC wood/aluminium entrance doors

VELFAC Ribo entrance doors are designed for installation where a medium strength door is required.

Typical situations include the main entrance to domestic buildings and secondary entrance doors in public buildings or office blocks.

Flush entrance doors are available in a number of external designs and can incorporate a range of glass apertures.

Glazed entrance doors provide maximum daylight, and can be divided by glazing bars with the resulting apertures glazed or panelled.



Flush entrance door with external design and glass aperture

Glazed entrance door with glazing bars and panel

Glazed entrance door



OPENING FUNCTION	FUNCTION		PRODUCT SYSTEM			
	outward opening	inward opening	VELFAC 200 systems	VELFAC Ribo	VELFAC In	VELFAC 500
Casement door	x		x	x		
Sliding casement door			x	x		
Patio door	x	x		x		
Casement door w/tilt function		x			x	
Glazed entrance door	x	x		x		x
Flush door	x	x		x		

**VELFAC wood/aluminium casement doors**



VELFAC 200 sliding casement door in combination with fixed units.



VELFAC 200 casement door in combination with fixed units.



VELFAC In tilt and turn casement doors and windows feature the distinctive slim frame design together with an inward opening function.



VELFAC Ribo patio doors are available as inward or outward opening, seen here as a Juliette solution in combination with VELFAC 200 windows.

# VELFAC WINDOWS DESIGNED TO LAST

Thousands of customers test VELFAC windows every day. Throughout Europe, millions of windows have stood the test of time, but despite this track record, we still maintain a demanding testing programme to ensure our system continues to meet - and exceed - all necessary regulatory standards.

VELFAC windows have been tested by Europe's most rigorous standards agencies, which have analysed all aspects of window design and performance. In many cases we routinely test special requirements for the qualities of our windows - child safety, fire safety and noise reduction are some of the areas we have tested.

Please call us if you have any questions about the testing programme, or test evidence of windows for your project on 01223 897100. An overview over our test results can be found on page 93-98.

The VELFAC system has received approval from:

- Chiltern Dynamics and BM Trada, Buckinghamshire
- EXOVA, Buckinghamshire
- Vinci Technology, Bedfordshire
- CWCT, University of Bath
- BRE, Herts
- SP Technical Research Institute of Sweden, Boraas, Sweden
- Teknologisk Institut, Aarhus, Denmark (DTI)
- DELTA, Aarhus, Denmark



VELFAC offers a CWCT accredited solution. Part of the CWCT test includes an aircraft engine simulating very strong wind. Here a 58m<sup>2</sup> large window screen is tested for windload.



Our R&D Department develops the majority of VELFAC ironmongery to ensure it is ideally suited to the style and function of the VELFAC system, and all items are regularly tested both by VELFAC and by independent testing bodies. Here, VELFAC ironmongery is exposed to salt-laden winds and coastal weather conditions.



VELFAC frames exposed to high winds, rain and sun. This tests the durability of different surface treatments.



The acoustic performance of VELFAC units is tested, and documented to support precise noise control solutions. We can provide windows that meet the project's specific acoustic requirements and offer a competitive solution.

# CE & DoP

The documentation is at hand. You can read more about our extensive testing program and see the results in all test areas at VELFAC.co.uk, where you will also find the Declaration of Performance documents (DoP) for all products in our range and our accreditation certificates.



VELFAC 200 ENERGY casement door ready to open and close 20,000 cycles during an internal test at VELFAC, which is an integral part of the development process.



Window façade exposed to CWCT water load test. Water nozzles are located directly in front of the façade and water pumps with a flow rate of at least 3.4 litres/m<sup>2</sup>/minute.



After a Cyclic corrosion testing (EN/ISO 10289) all VELFAC brackets must still be without a trace of rust. The difference between a VELFAC corrosion protection (left) and corrosion protection for the industry's traditional demands are clear.



VELFAC composite windows and doors guarantee the safety performance required to meet the Part Q regulations, and the exacting standards of UK Police flagship initiative Secured by Design (SBD) – all without any change to the distinctive ultra-thin frame design. This means the VELFAC system can be used in SBD developments – regarded by potential purchasers as a guarantee of additional safety and security both in and outside the building.



Secured by Design

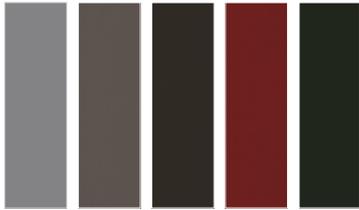


Official Police Security Initiative

# FLEXIBILITY AND DESIGN FREEDOM

## External colours and surface finishes

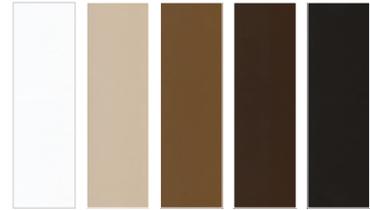
The external aluminium sashes are surface treated in a hard-wearing Polyester-powder coating available in a wide range of RAL colours, metallic finish in RAL 9006 & 9007, or anodised silver or bronze.



All classic RAL-colours



VELFAC Granite



Anodised

## Internal colours and surface finishes

The wood frames are treated with a clear lacquer to enhance the warmth of the natural grain, or painted in one of a range of RAL colours to match the interior decor.



Popular internal surface finishes

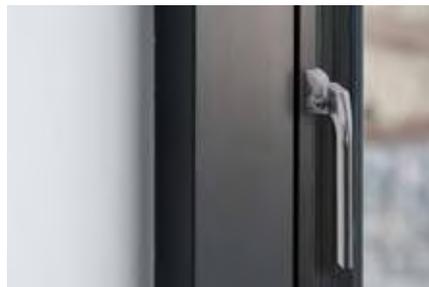


Internal VELFAC 200 glazing beads



## The right combination

Spacer profiles are available in light grey or black, with glazing beads also available in light grey, black, and in white, enabling completely black or white windows to be specified.

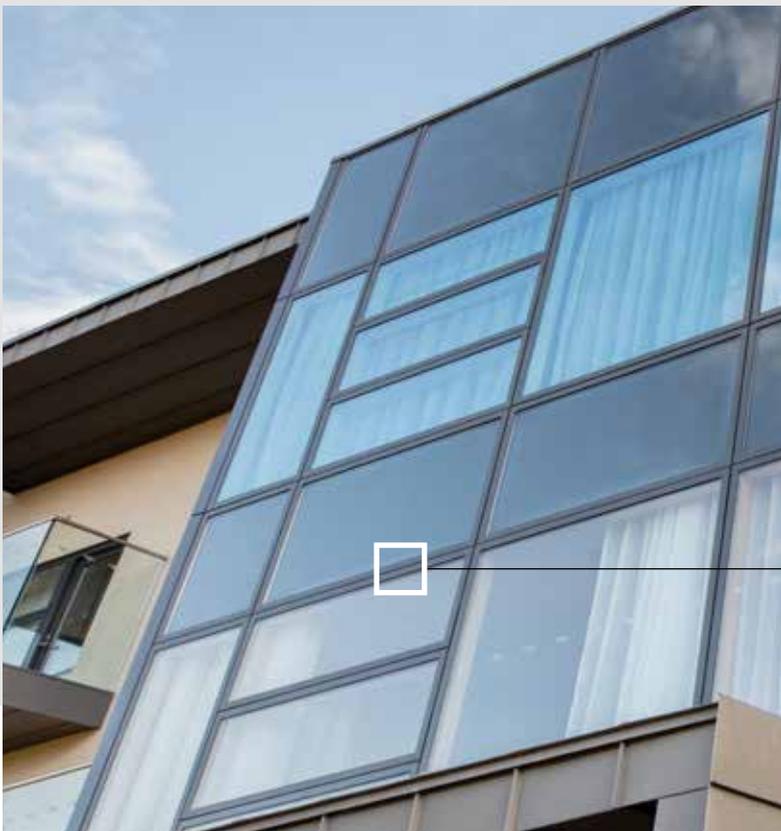


## Shapes

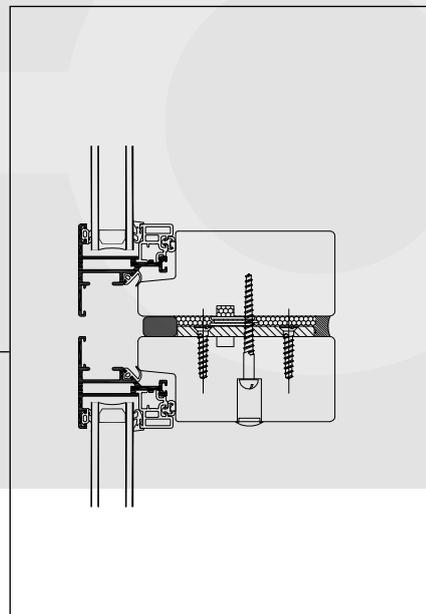
VELFAC windows can be manufactured in a wide range of shapes to suit the architectural style of the building, or ready to be used in combination to create glazed features. Most shaped windows are fixed units, although opening units can be specified.



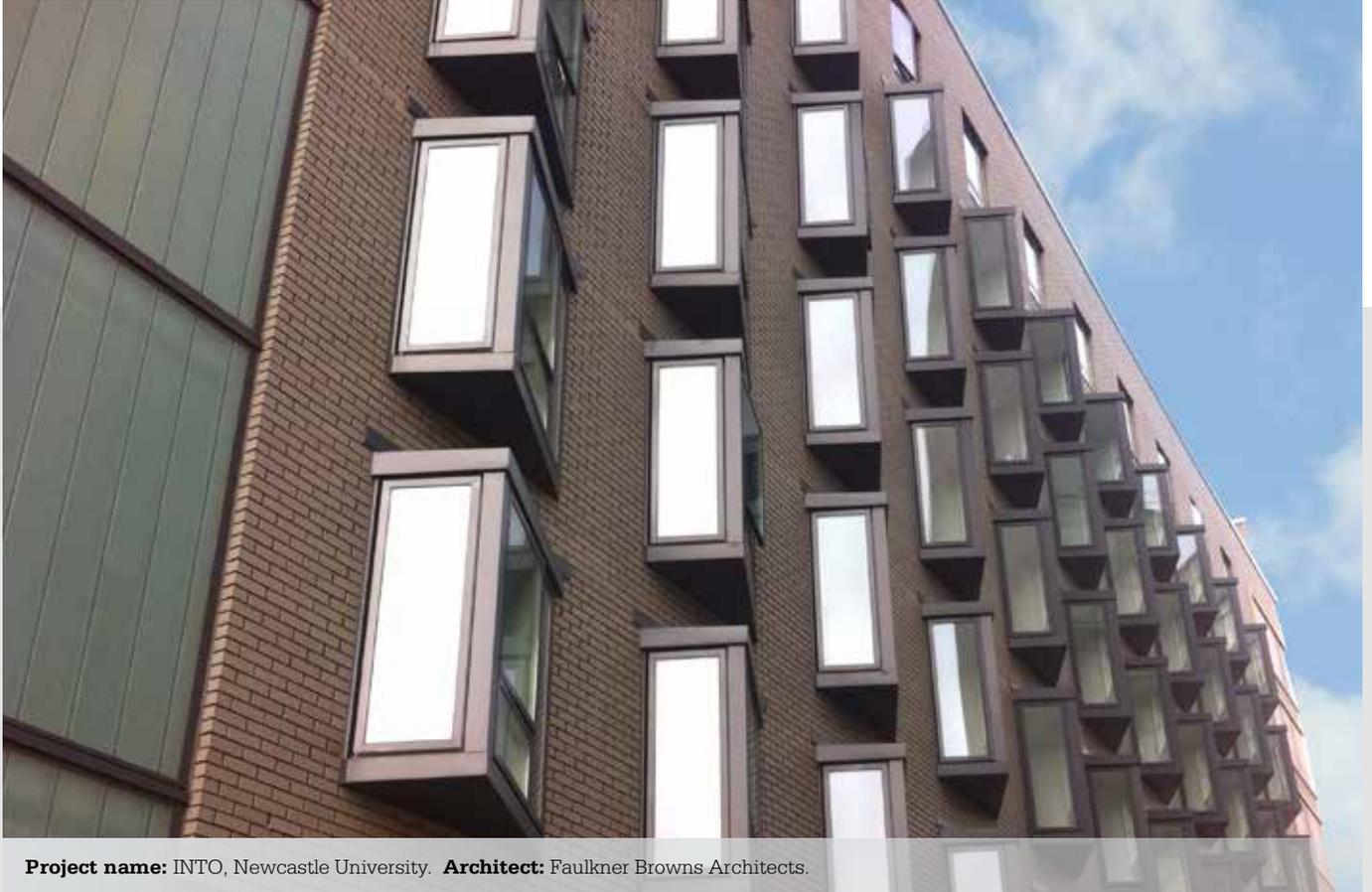
# REFERENCE PROJECT



Reinforcement coupling detail



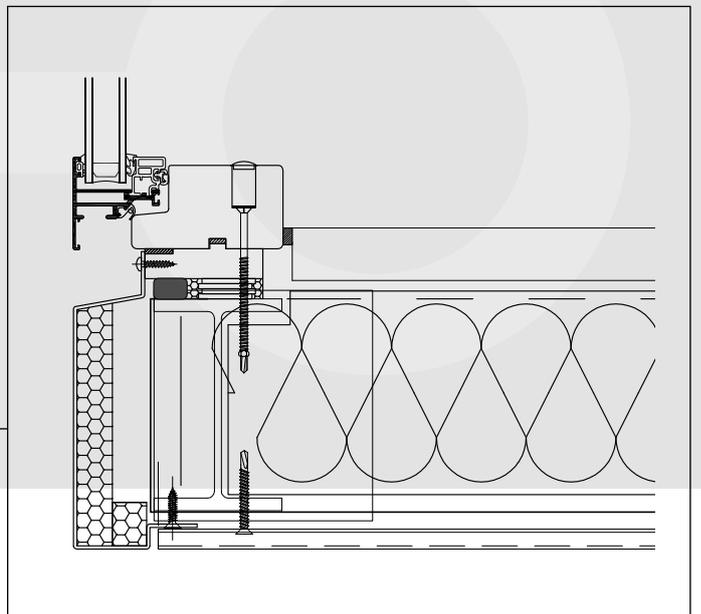
# REFERENCE PROJECT



**Project name:** INTO, Newcastle University. **Architect:** Faulkner Browns Architects.



Cantilevered frames



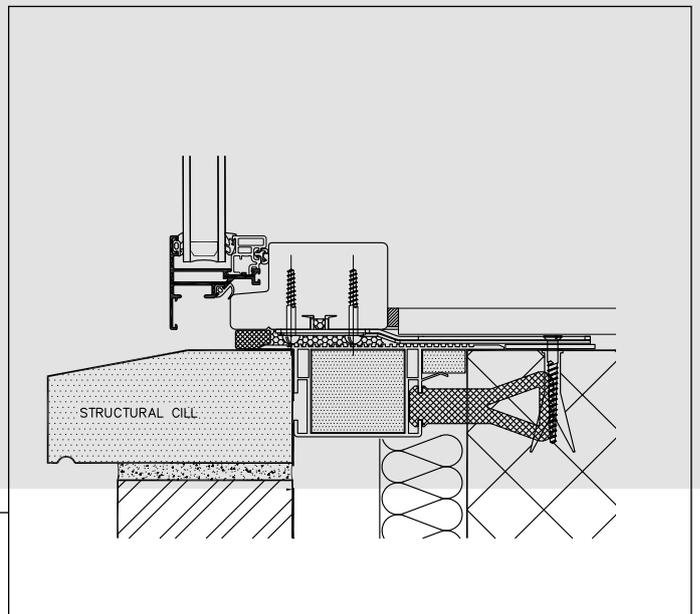
# REFERENCE PROJECT



**Project name:** Kearns Village, Rossendale. **Developer:** Skipton Properties.



Stone cill



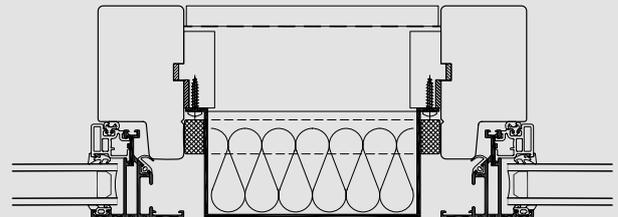
# REFERENCE PROJECT



**Project name:** St Wilfrid's Catholic School, Crawley. **Architect:** Curl la Tourelle Head Architecture.



Window with top-hat pressing



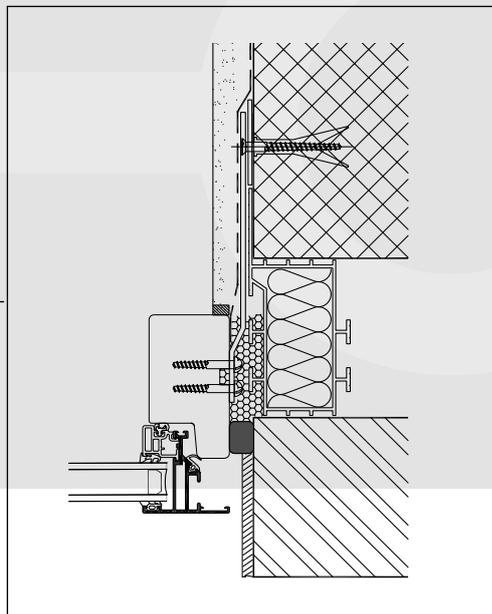
# REFERENCE PROJECT



**Project name:** Erith Park, Kent. **Architect:** Broadway Malyan.



Brick detail at the jamb



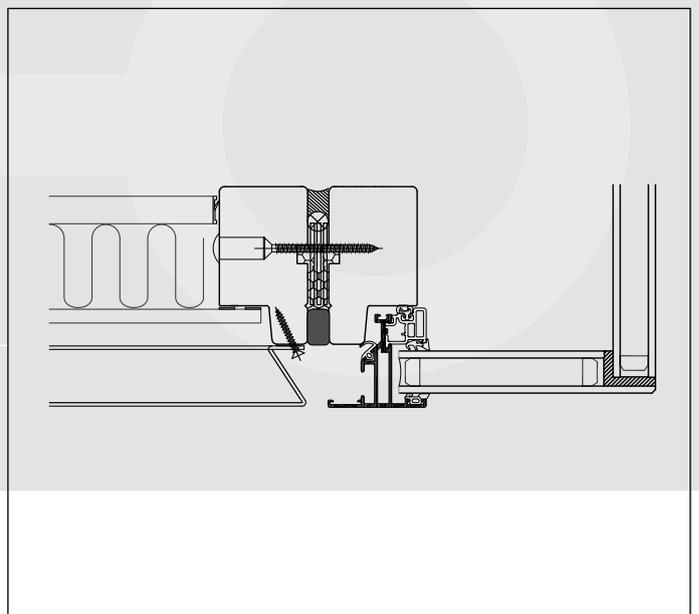
# REFERENCE PROJECT



**Project name:** Helenslea Avenue, London. **Architect:** LTS Architects.



Corner window detail



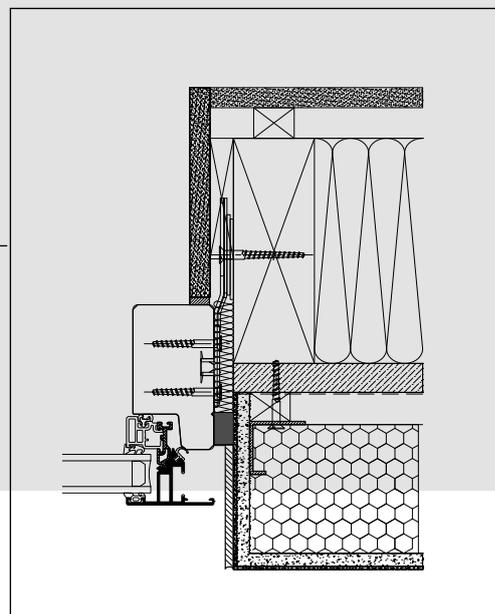
# REFERENCE PROJECT



**Project name:** Holland Park Avenue, London. **Architect:** Broadway Malyan.



Render detail at jamb



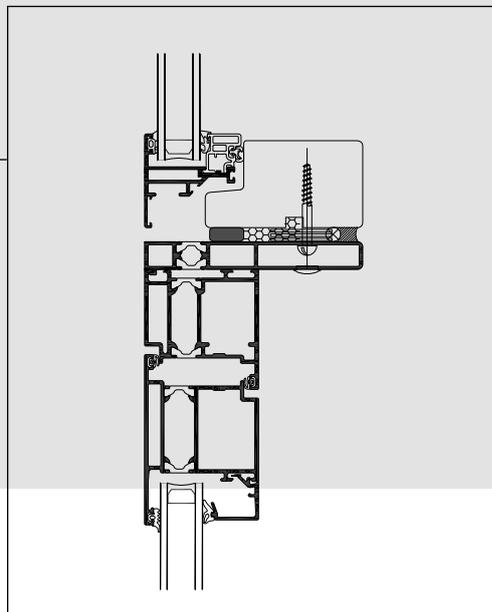
# REFERENCE PROJECT



**Project name:** Holborough Lakes Primary School, Snodland, Kent. **Architect:** HMY.



Coupling VELFAC 200 and VELFAC 500



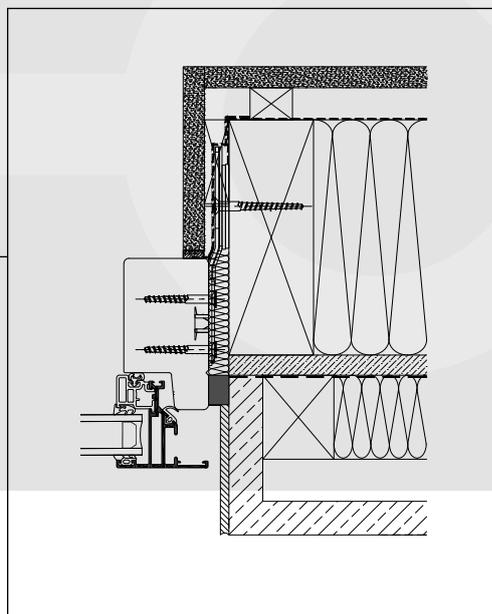
# REFERENCE PROJECT



**Project name:** Rose House, Bristol. **Architect:** Emmett Russell Architects.



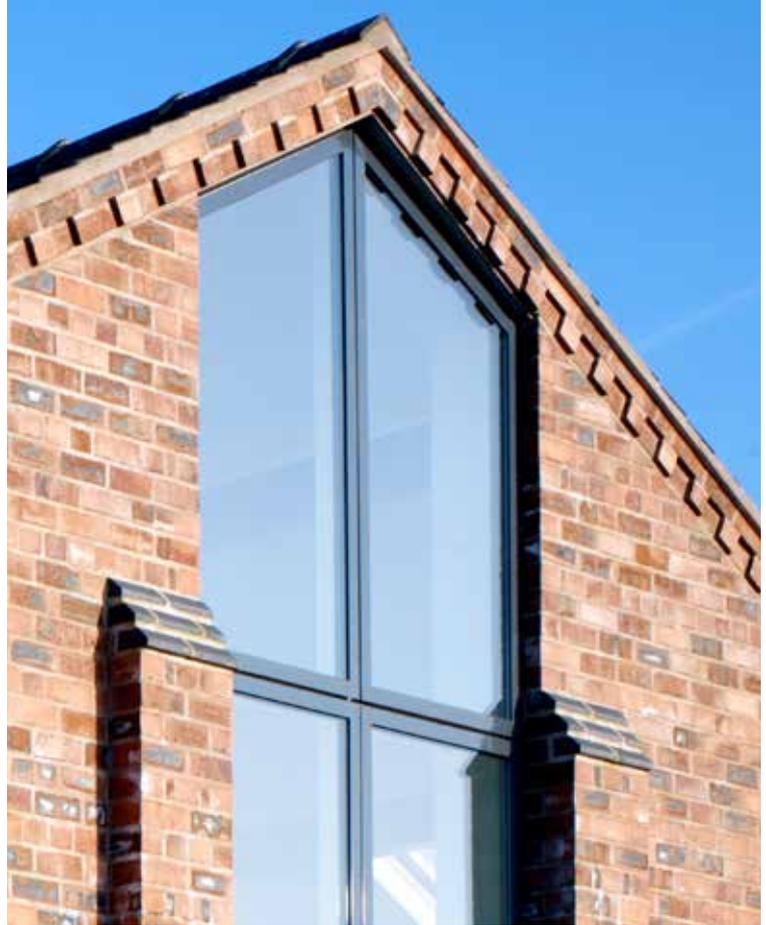
Timber cladding at jamb



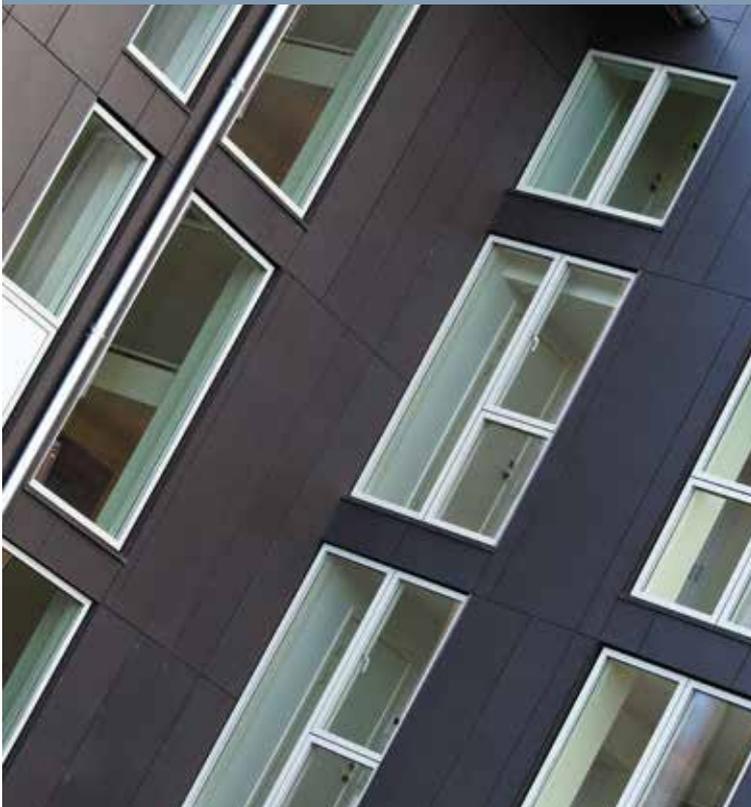
FULL MODULARITY AND WINDOW WALLING



WIDE RANGE OF SHAPED WINDOWS



WEATHER-RESISTANT ALUMINIUM ON THE OUTSIDE



NATURAL WOOD ON THE INSIDE





# VELFAC 200 SYSTEMS

THE ORIGINAL COMPOSITE WINDOWS



Top: Beechdown, Challaborough, Devon / Developer Beachdown Ltd

Bottom: Deaconess House, Edinburgh / The Kalyvides Partnership

CLEAN CRISP AND UNIFORM SIGHTLINES



ESPAÑOLETTE HANDLE WITH ERGONOMIC DESIGN



MOTORISED WINDOWS WITH FULLY CONCEALED MOTORS



MINIMALISTIC DESIGN  
STYLISH AND SOPHISTICATED



SLIM SASHES PROVIDE  
MAXIMUM DAYLIGHT



COMPREHENSIVE 12 YEARS  
WARRANTY



SECURED BY DESIGN  
ACCREDITED



BI-PARTING SLIDING DOOR OPENS UP TO 2.5 METRES



# VELFAC 200 / VELFAC 200 ENERGY – OVERVIEW

## CHARACTERISTICS

Minimalistic design - stylish and sophisticated

Uniform sightlines regardless of opening function

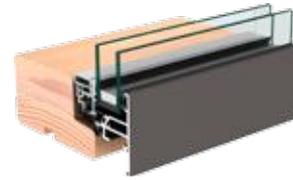
Meets requirements of NHBC 6.9 for curtain walling and CWCT

Market leading warranty of 12 years

Uw values down to 0.8 W/m<sup>2</sup>K

Available as 24mm double and 48mm triple layer glazing

## SASH VARIATIONS



**VELFAC 200**  
24mm double glazed unit

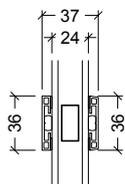


**VELFAC 200 ENERGY**  
48mm triple glazed unit

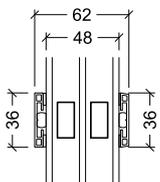
## GLAZING BARS AND WINDOWS



36mm



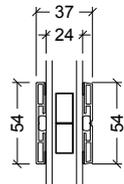
36mm energy glazing bar  
24mm glazing



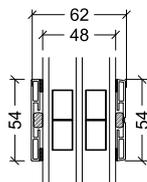
36mm energy glazing bar  
48mm glazing



54mm



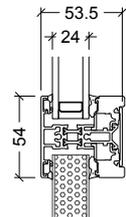
54mm energy glazing bar  
24mm glazing



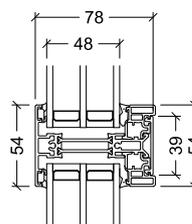
54mm energy glazing bar  
48mm glazing



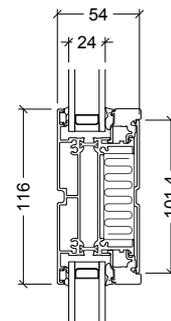
116mm



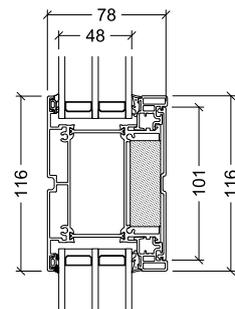
54mm glazing bar  
24mm glazing



54mm glazing bar  
48mm glazing



116mm glazing bar  
24mm glazing



116mm glazing bar  
48mm glazing

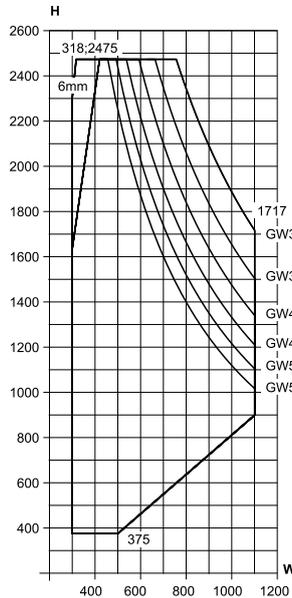
# VELFAC 200 / VELFAC 200 ENERGY – OPENING FUNCTIONS

## SIDEHUNG WINDOW

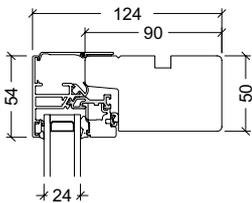
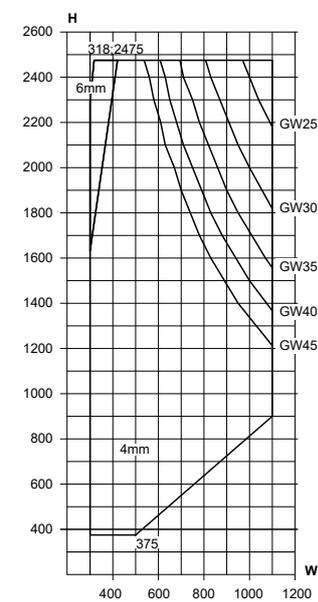


- The sash opens up to 90°
- Concealed hinges
- An adjustable friction brake allows random opening position
- The espagnolette has a built-in ventilation position

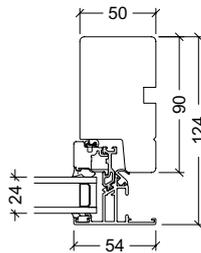
Min./max. sizes, 48mm glazing



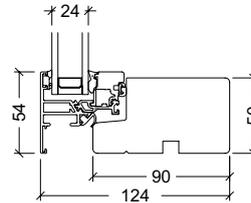
Min./max. sizes, 24mm glazing



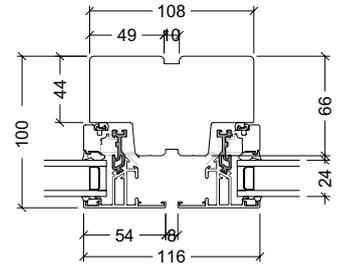
Head



Jamb



Cill



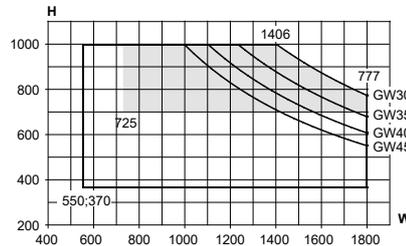
66mm mullion

## BOTTOMHUNG WINDOW

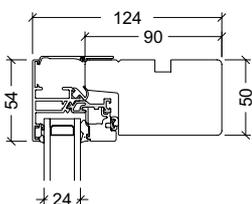
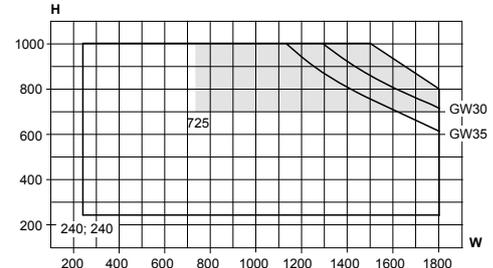


- Used for smoke ventilation (grey area)
- Supplied with electric motor for smoke ventilation

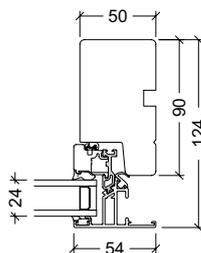
Min./max. sizes, 48mm glazing



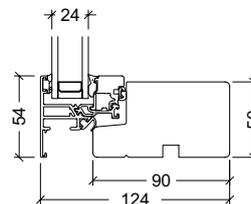
Min./max. sizes, 24mm glazing



Head



Jamb



Cill

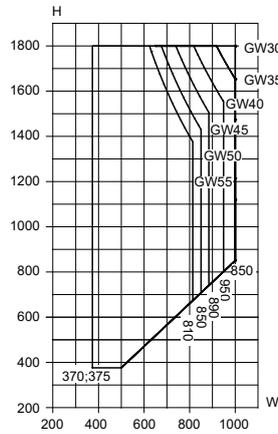
GW = glass weight  
(see page 80)

# VELFAC 200 / VELFAC 200 ENERGY – OPENING FUNCTIONS

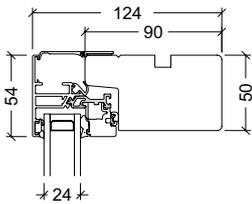
## SIDE-GUIDED WINDOW



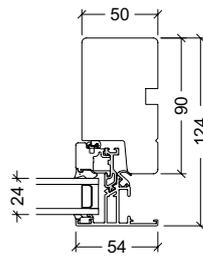
Min./max. sizes, 24mm and 48mm glazing



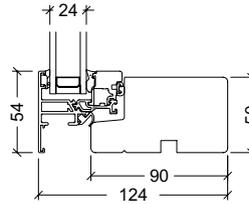
- To open, the sash moves on guide rails mounted on the head and cill
- The sash stops at approx. 90°
- When fully opened, a 15cm (minimum) gap allows cleaning from the inside
- The espagnolette has a built-in ventilation position
- An adjustable friction brake allows random opening position



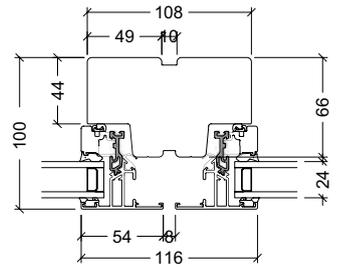
Head



Jamb



Cill

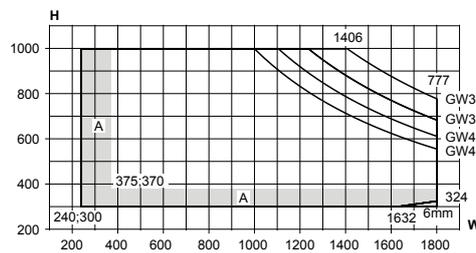


66mm mullion

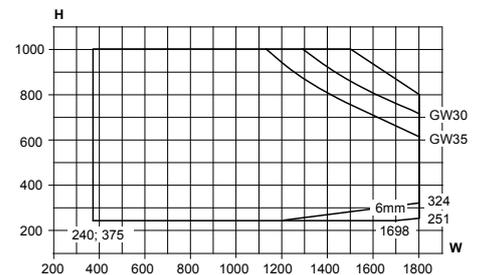
## TOPHUNG WINDOW



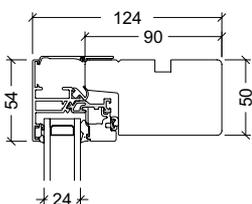
Min./max. sizes, 48mm glazing



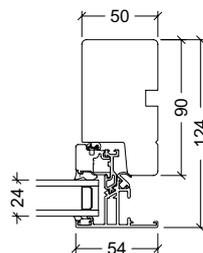
Min./max. sizes, 24mm glazing



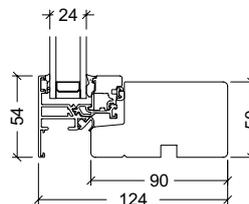
- The sash opens up to 85°
- The espagnolette has a built-in ventilation position
- Opportunity for rescue opening in low, wide windows, where the top-guided windows cannot fulfill the requirement



Head



Jamb



Cill

GW = glass weight (see page 80)  
A = With circular catch handle and friction brake

# VELFAC 200 / VELFAC 200 ENERGY – OPENING FUNCTIONS

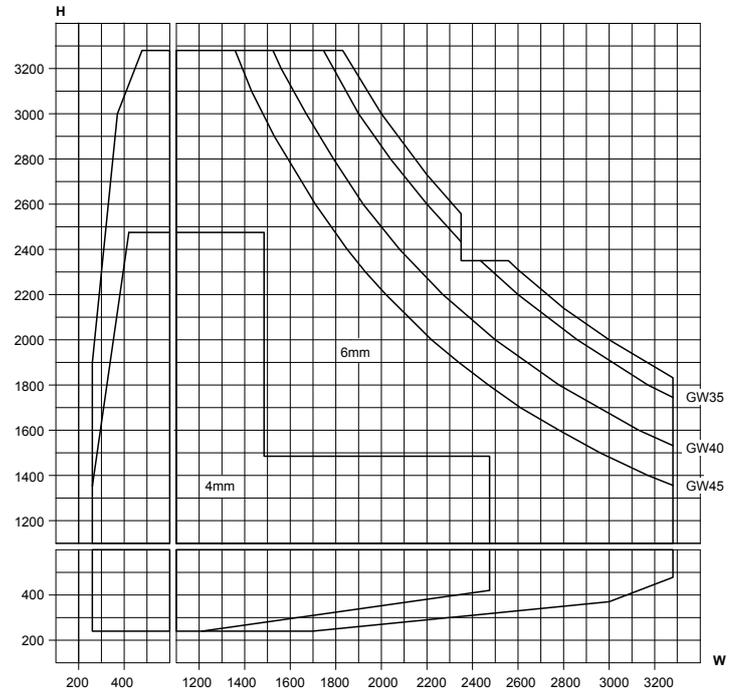
## FIXED CASEMENT



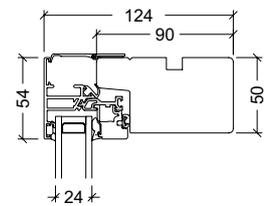
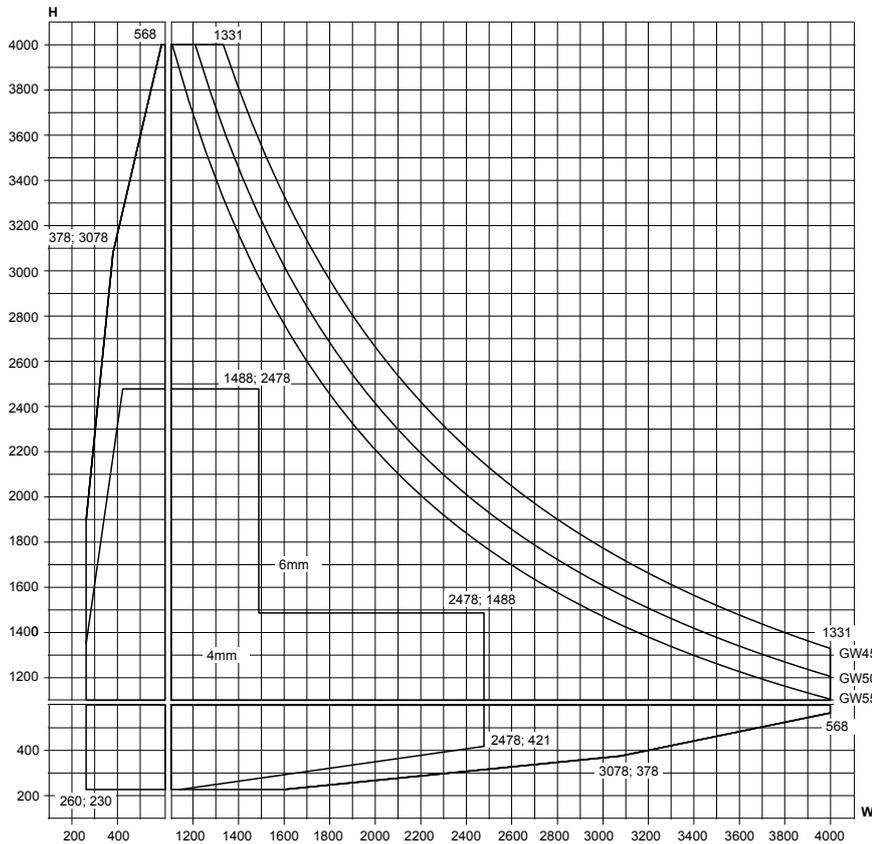
- The frame and sash are integrated
- Appears identical to all VELFAC 200 window types

GW = glass weight  
(see page 80)

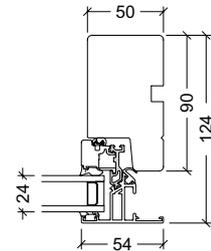
Min./max. sizes, 24mm glazing



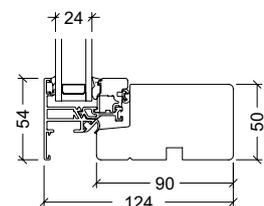
Min./max. sizes, 48mm glazing



Head



Jamb



Cill

# VELFAC 200 / VELFAC 200 ENERGY – OPENING FUNCTIONS

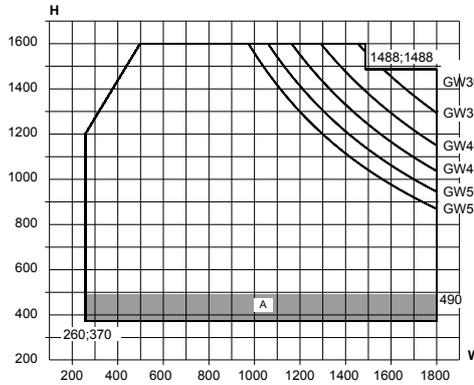
## TOP-GUIDED WINDOW



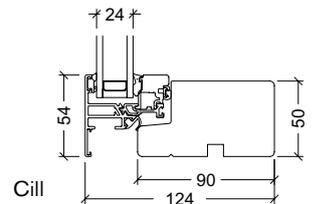
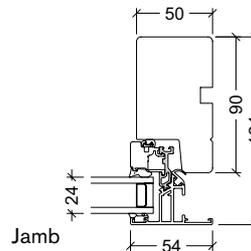
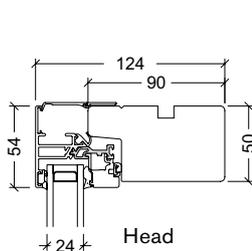
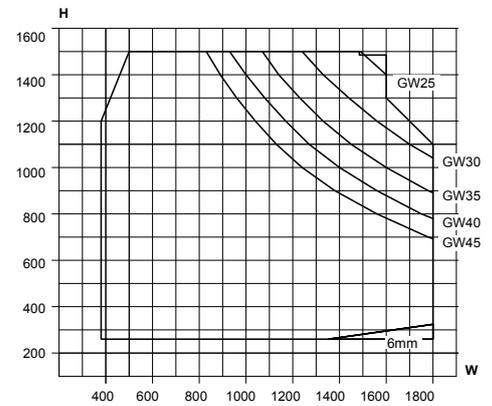
- When opened the sash provides a ventilation gap at the head
- The espagnolette has a built-in ventilation position
- The balance arms have built-in adjustable friction brakes allowing random opening position

GW = glass weight (see page 80)  
 A = With circular catch handle and friction brake

Min./max. sizes, 48mm glazing



Min./max. sizes, 24mm glazing

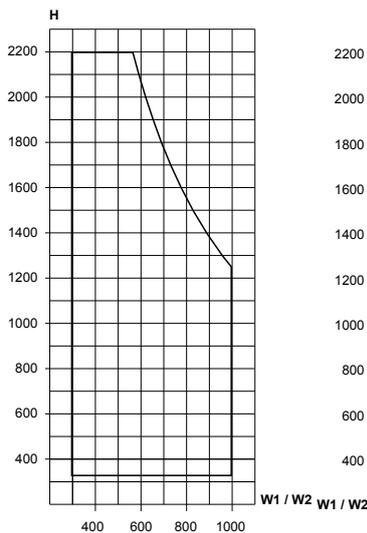


## GLASS TO GLASS CORNER WINDOW

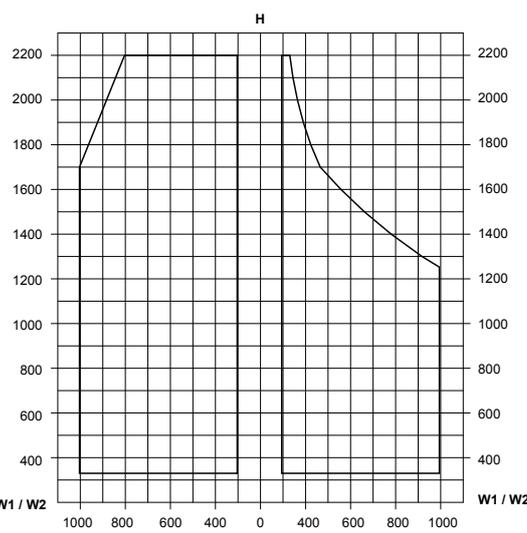


Min./max. sizes, 24mm glazing

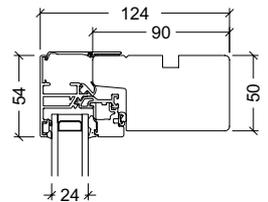
Symmetric



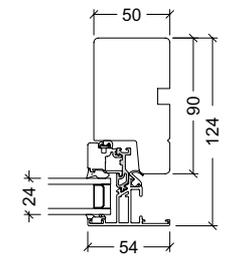
Asymmetric



- Can be used where an external view is required without disruption from corner posts
- The window allows maximum light to enter and can be used as an architectural feature



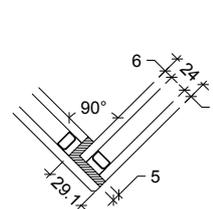
Head



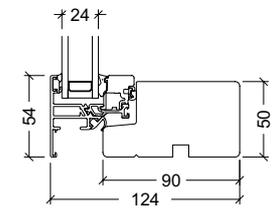
Jamb

Min./max. sizes, 48mm glazing

Construction rules:  
 $250\text{mm} \leq H \leq 2400\text{mm}$   
 $300\text{mm} \leq W \leq 1000\text{mm}$   
 $W1+W2 \leq 2000\text{mm}$   
 $W1+W2 \geq 800\text{mm}$



Glass to glass corner



Cill

# VELFAC 200 / VELFAC 200 ENERGY – OPENING FUNCTIONS

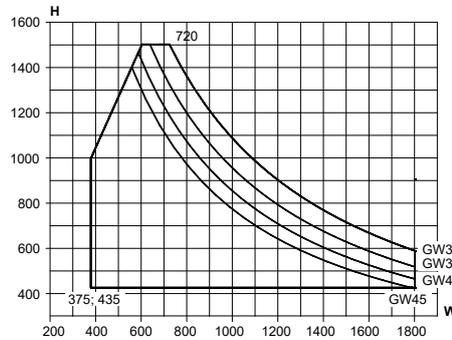
## TOPHUNG FULLY REVERSIBLE WINDOW - UNIFORM SIGHTLINES



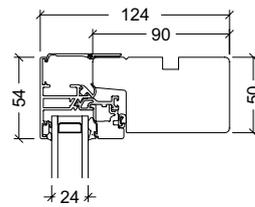
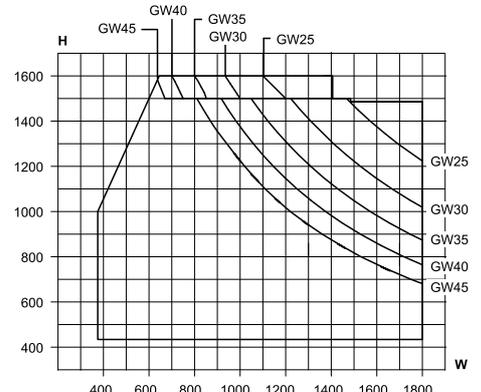
- The sash can be rotated by up to 170° to allow cleaning from the inside
- A safety restrictor is triggered when the window is opened approx. 5cm
- The window can be reversed to the cleaning position where an automatic catch keeps the window in place
- The espagnolette has a built-in ventilation position
- Max. setback 100mm to avoid over-sail clash



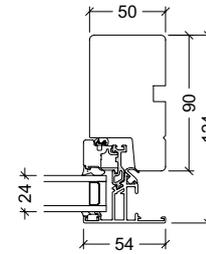
Min./max. sizes, 48mm glazing



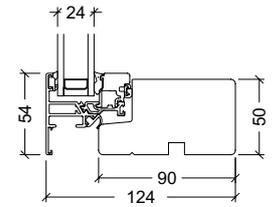
Min./max. sizes, 24mm glazing



Head



Jamb



Cill

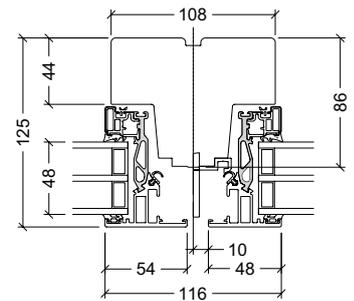
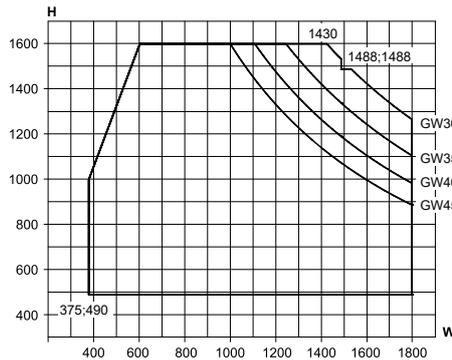
## TOPHUNG FULLY REVERSIBLE WINDOW - WITH NO OVERSAIL - WITH 48MM SIGHTLINES



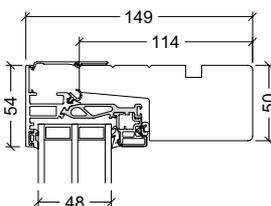
- Same function as standard reversible window, however with no oversail
- Rotating arms mean 48mm jamb sightline
- Available as triple glazed only
- Due to the rotating arms a sealing of minimum 15mm is required



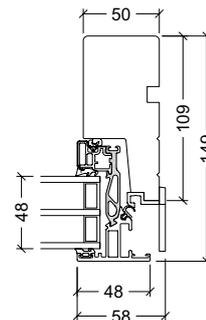
Min./max. sizes, 48mm glazing



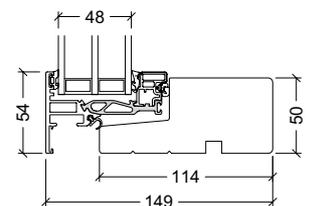
Mullion with uniform sightline window to the left and tophung fully reversible window with slightly different sightlines to the right



Head



Jamb. NB. the sash is 4mm slimmer in both sides than the standard sash



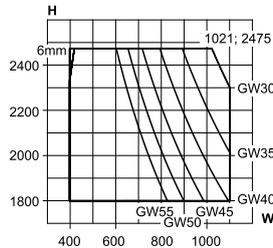
Cill

# VELFAC 200 / VELFAC 200 ENERGY – OPENING FUNCTIONS

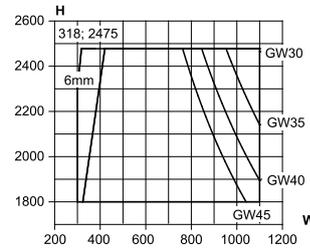
## CASEMENT DOOR, 1-LEAF



Min./max. sizes, 48mm glazing

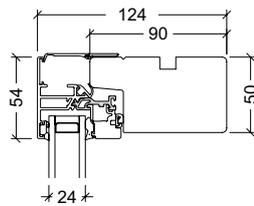


Min./max. sizes, 24mm glazing

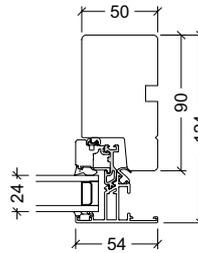


- The sash opens up to 90°
- Concealed hinges
- An adjustable friction brake allows random opening position
- Can be supplied to allow 180° opening but is then not fitted with friction arm
- The espagnolette has a built-in ventilation position
- Supplied with 15mm or 52mm threshold

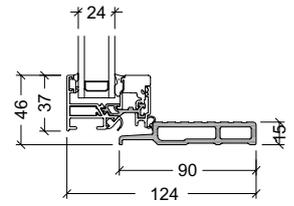
GW = glass weight (see page 80)



Head



Jamb

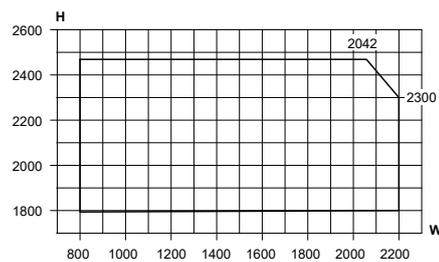


15mm threshold

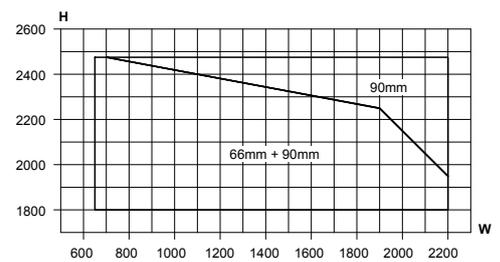
## CASEMENT DOOR, 2-LEAF



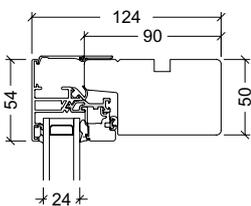
Min./max. sizes, 48mm glazing



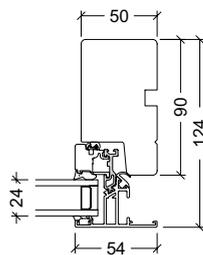
Min./max. sizes, 24mm glazing



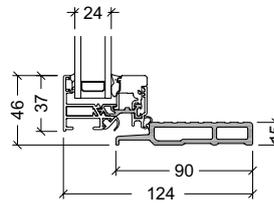
- Please refer to Casement door, 1-leaf for information
- Freeing the flushbolt in the French casement mullion allows the slave door to be opened



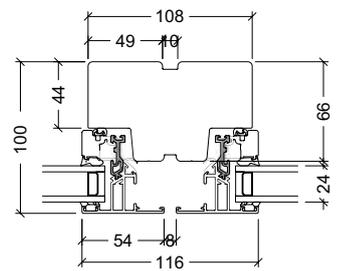
Head



Jamb



15mm threshold



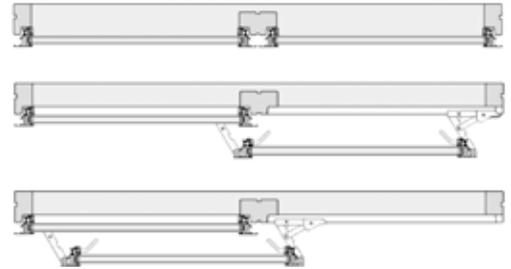
66mm mullion

# VELFAC 200 / VELFAC 200 ENERGY – OPENING FUNCTIONS

## SLIDING CASEMENT DOOR WITH 70MM THRESHOLD, 1-LEAF

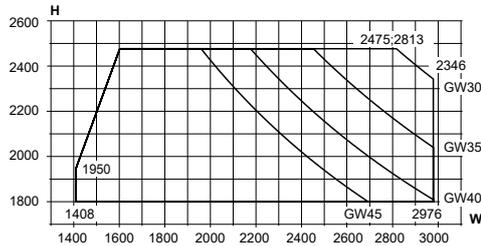


- The sliding door provides up to 1.2m free opening
- The frame profile of the door matches that of the VELFAC 200 window series
- When opened, the master door moves outwards from the frame, and then slides across the adjacent fixed sash (with 24mm glazing 102-112mm out, with 48mm glazing 116-126mm out)

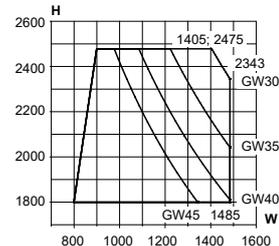


How to open the sliding casement door (shown here as 1-leaf)

### Min./max. sizes, 48mm glazing Complete unit

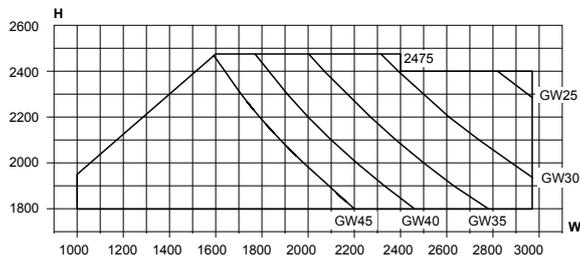


### Min./max. sizes, 48mm glazing Opening sash

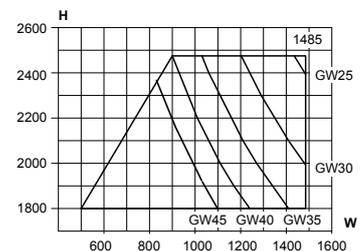


N.B. All asymmetric sashes and large symmetric sashes will be supplied separately and must be fixed on site.

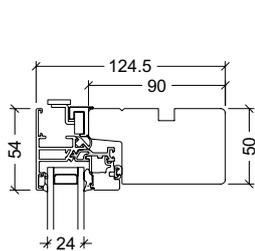
### Min./max. sizes, 24mm glazing Complete unit



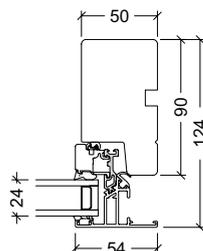
### Min./max. sizes, 24mm glazing Opening sash



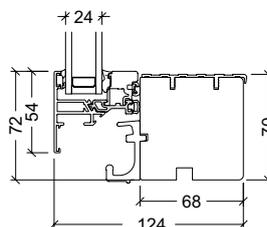
GW = glass weight (see page 80)



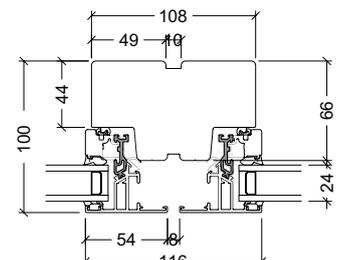
Head



Jamb



70mm threshold



66mm mullion

# VELFAC 200 / VELFAC 200 ENERGY – OPENING FUNCTIONS

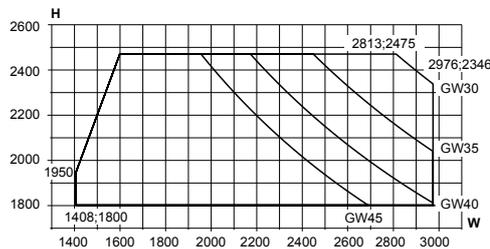
## SLIDING CASEMENT DOOR WITH 70MM THRESHOLD, 2-LEAF



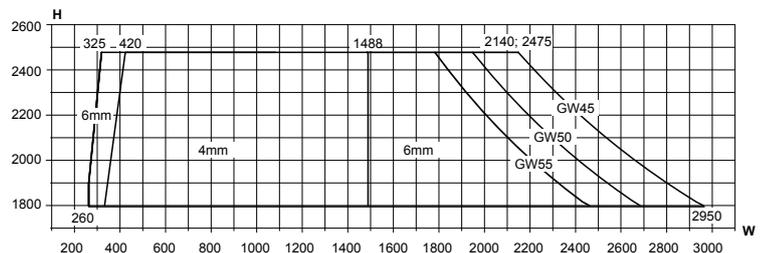
- The sliding door provides up to 2.5m free opening
- Max. width 6m for total screen including sidelights
- The frame profile of the door matches that of the VELFAC 200 window series
- When opened, the master door moves outwards from the frame, and then slides across the adjacent fixed sash (with 24mm glazing 96mm out, with 48mm glazing 116mm out)
- Freeing the flushbolt in the French casement mullion allows the slave door to be opened similarly

GW = glass weight  
(see page 80)

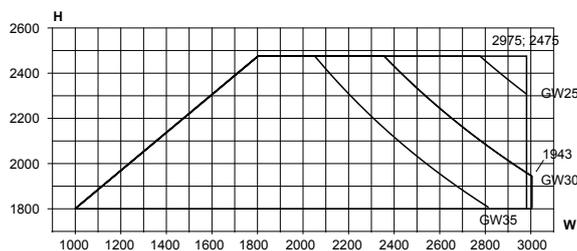
### Min./max. sizes, 48mm glazing 2 opening sashes with French casement



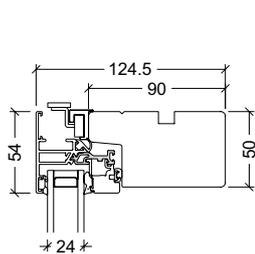
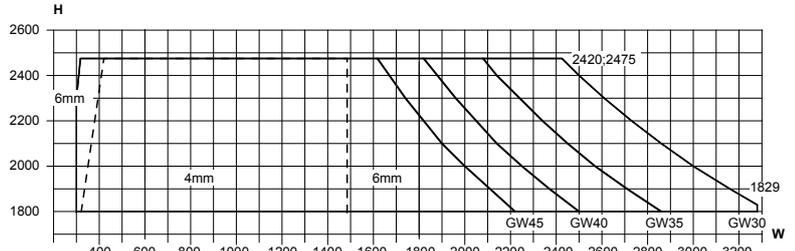
### Min./max. sizes, 48mm glazing Fixed sash for sliding door and side light



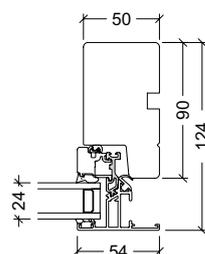
### Min./max. sizes, 24mm glazing 2 opening sashes with French casement



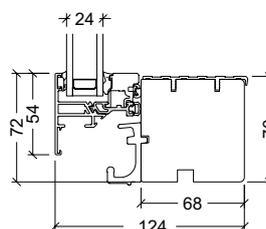
### Min./max. sizes, 24mm glazing Fixed sash for sliding door and side light



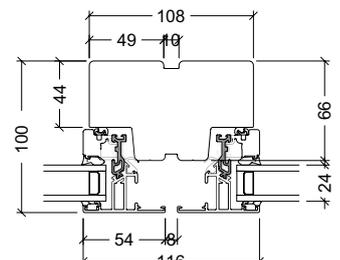
Head



Jamb



70mm threshold



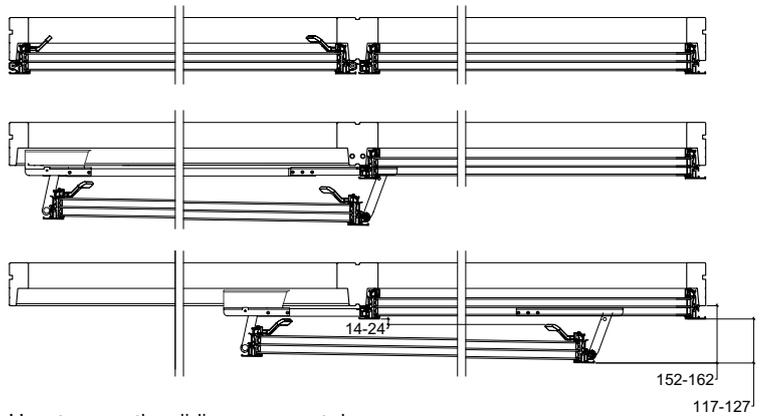
66mm mullion

# VELFAC 200 ENERGY – OPENING FUNCTIONS

## SLIDING CASEMENT DOOR WITH 25MM THRESHOLD, 1-LEAF



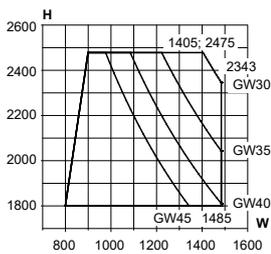
- The sliding door provides up to 1.2m free opening
- The frame profile of the door matches that of the VELFAC 200 window series
- Only available with 48mm glazing
- The 25mm threshold allows for installation with level access
- When opened, the master door moves outwards from the frame, and then slides across the adjacent fixed sash (117-127mm out)
- Threshold must be supported along the full width



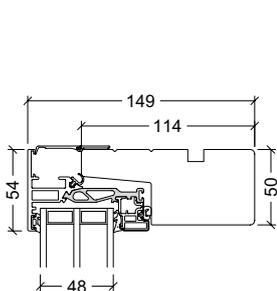
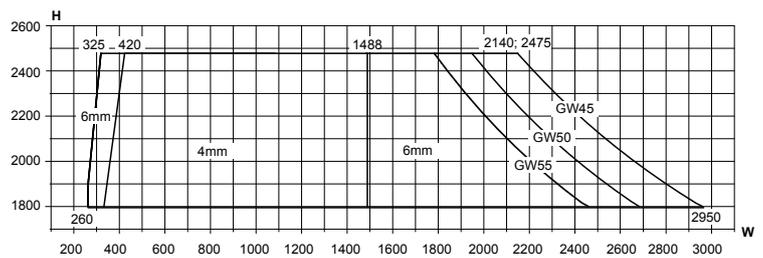
How to open the sliding casement door

GW = glass weight  
(see page 80)

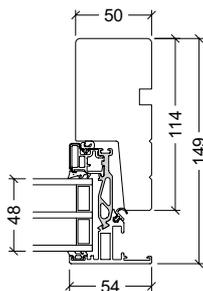
### Min./max. sizes, 48mm glazing Opening sash



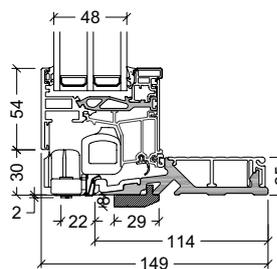
### Min./max. sizes, 48mm glazing Fixed sash for sliding door



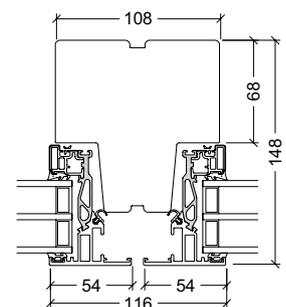
Head



Jamb



25mm threshold



114mm transom (mullion)

# VELFAC 200 – FIRE WINDOWS AND CASEMENT DOORS

## SASH FUNCTIONS, MIN./MAX. SIZES, CLASSIFICATION

### Sash functions and classification

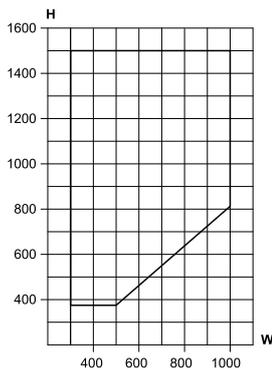
- Sidehung opening light, Class E60
- Fixed light, Class E60
- Tophung projecting light, Class E60
- Reversible opening light, Class E60
- Casement door, Class E30
- Ventilated fire panel, Class EI60

**Application.** VELFAC fire resistant windows maintain the identical sightlines of the VELFAC 200 system, and can therefore be used in combination with other window units without affecting the uniform external façade.

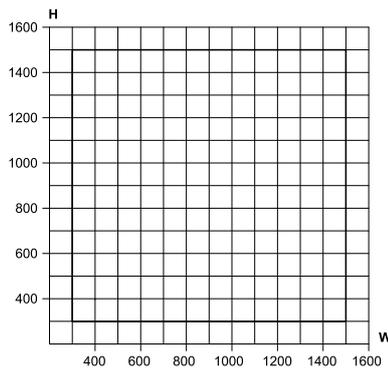
**Function.** VELFAC fire windows are flame retardant on the internal side for either 30 minutes or 60 minutes depending on the sash function (Integrity E). The ventilated panel has been tested for integrity and insulation (EI).

**Glazing.** Fire windows and doors are only available as double glazed units (always 6-14-4, glass weight 25 kg/m<sup>2</sup>).

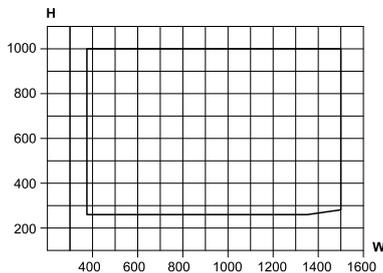
### Min./max. sizes Sidehung fire window



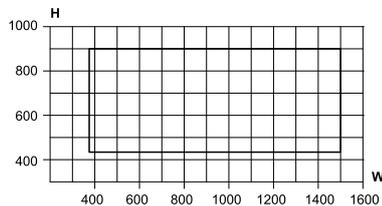
### Min./max. sizes Fixed fire casement



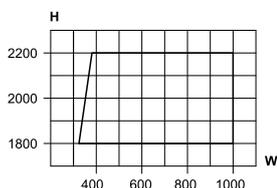
### Min./max. sizes Top-guided fire window



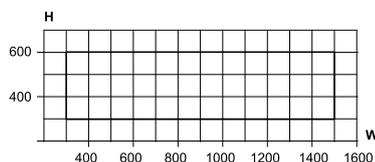
### Min./max. sizes Tophung fully reversible fire window



### Min./max. sizes Casement fire door

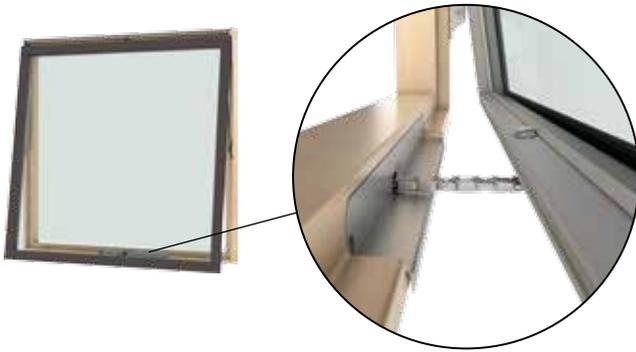


### Min./max. sizes Ventilated fire panel



# VELFAC 200 – MOTORISED SMOKE VENT

## SASH FUNCTIONS, MIN./MAX. SIZES, CLASSIFICATION



**Application.** VELFAC motorised smoke vents maintain the identical sightlines of the VELFAC 200 system, and can therefore be used in combination with other window units without affecting the uniform external façade.

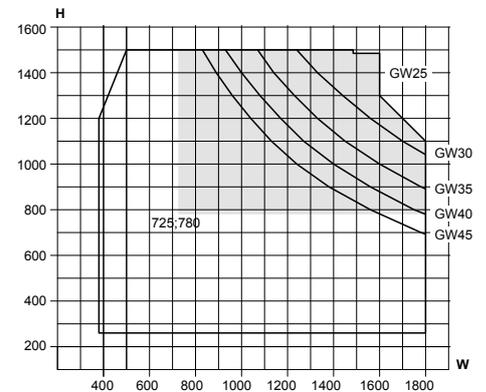
**Function.** VELFAC smoke vents are tested and CE marked in accordance with EN12101-2:2003. Smoke vents are programmed to open on receipt of a signal from smoke detectors via a central computer. All VELFAC smoke vents are operated using 500mm chains, providing a clear opening of 440mm at the opening side. Aerodynamic free area calculations are made in combination with opening function and window size - please call VELFAC for accurate figures.

### Sash functions

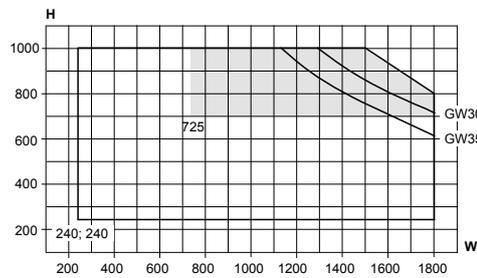
- Sidehung window (DGU + TGU)
- Bottomhung window (DGU + TGU)
- Side-guided window (DGU)
- Tophung window (DGU)
- Top-guided window (DGU + TGU)
- Tophung fully reversible window (DGU)

**Min./max. sizes** shown are for DGU opening functions. There will be limitations regarding max. sizes and glass weight limits for TGU opening function. Please refer to min./max. sizes under the opening function.

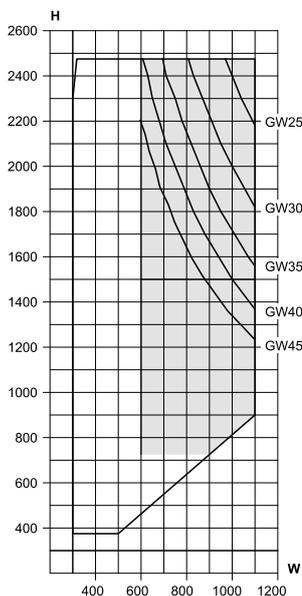
### Min./max. sizes Top-guided window



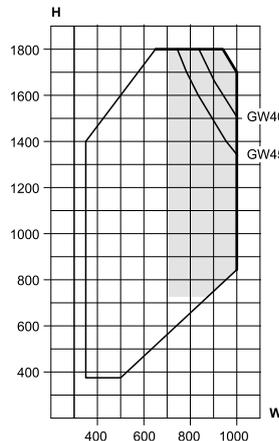
### Min./max. sizes Bottomhung/tophung window



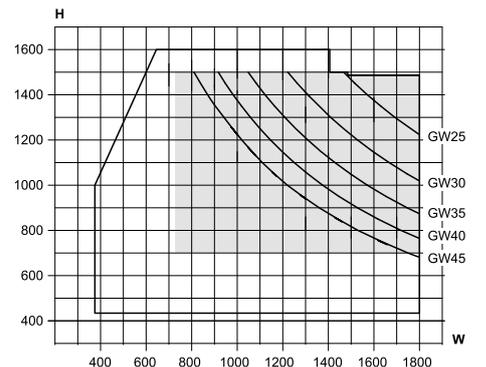
### Min./max. sizes Sidehung window



### Min./max. sizes Side-guided window



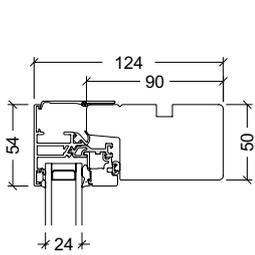
### Min./max. sizes Tophung fully reversible window



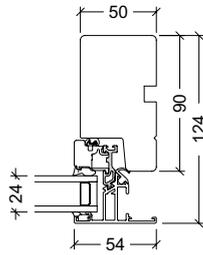
= Min./max. sizes for smoke vent

# VELFAC 200 – FRAMES, MULLIONS AND TRANSOMS

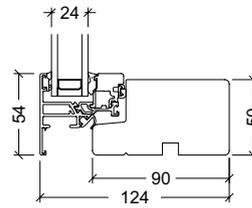
## FRAMES, 24MM GLAZING



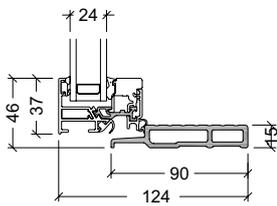
Head



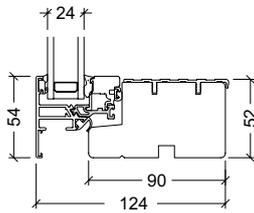
Jamb



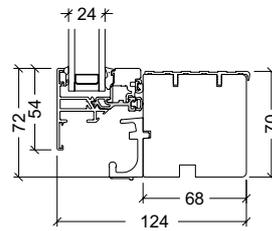
Cill



15mm threshold, casement door

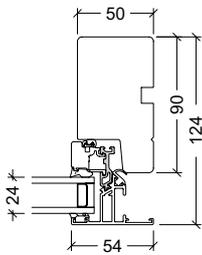


52mm threshold, casement door

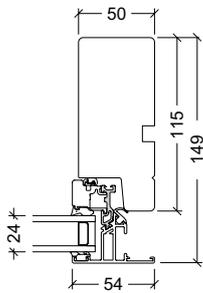


Threshold, sliding casement door

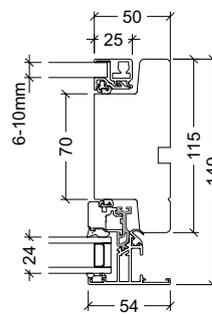
## FRAME VARIATIONS



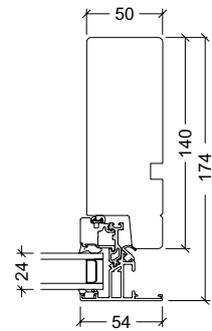
90mm frame



115mm frame

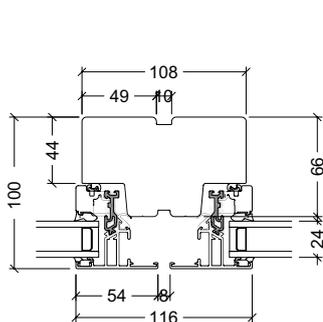


115mm frame with internal sash

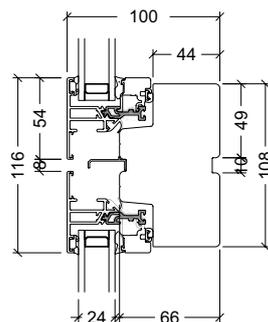


140mm frame

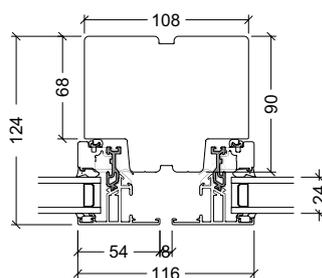
## MULLIONS AND TRANSOMS



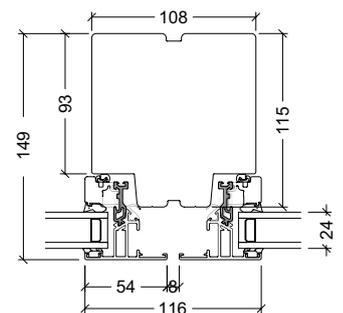
66mm mullion



66mm transom



90mm mullion (transom)

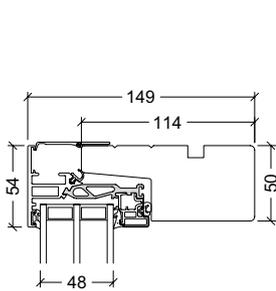


115mm mullion (transom)

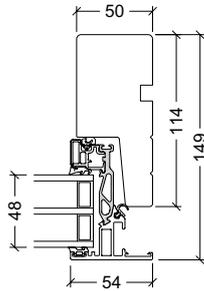
## MULLION AND TRANSOM VARIATIONS

# VELFAC 200 ENERGY – FRAMES, MULLIONS AND TRANSOMS

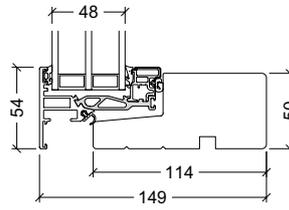
## FRAMES, 48MM GLAZING



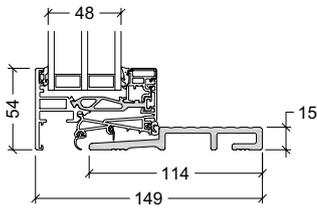
Head



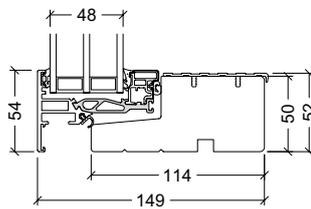
Jamb



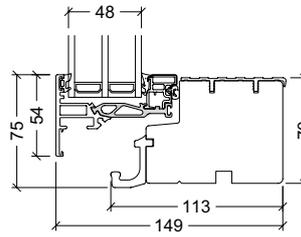
Cill



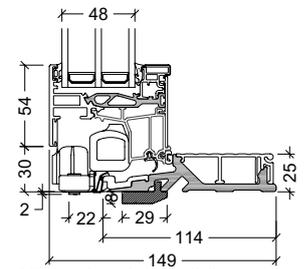
15mm threshold, casement door



52mm threshold, casement door

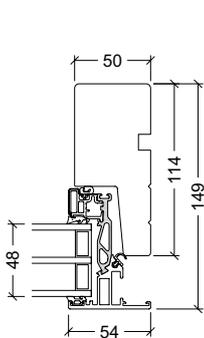


70mm threshold, sliding casement door

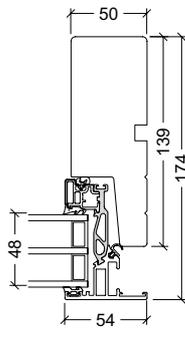


25mm threshold, sliding casement door

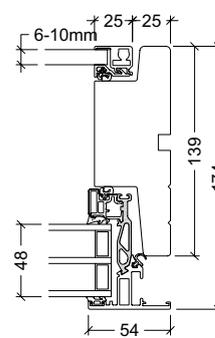
## FRAME VARIATIONS



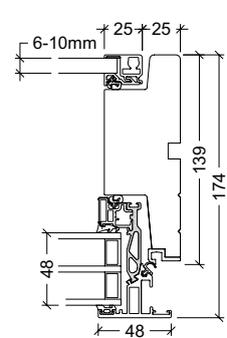
114mm frame



139mm frame



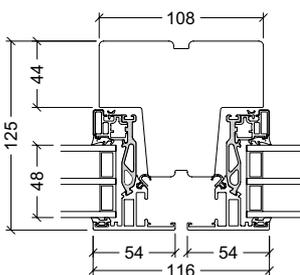
139mm frame with internal sash (standard)



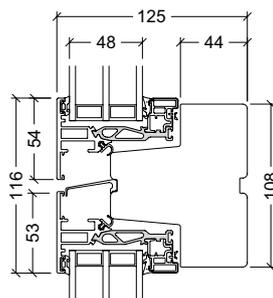
139mm frame with internal sash (slightly different sightlines)

## MULLIONS AND TRANSOMS

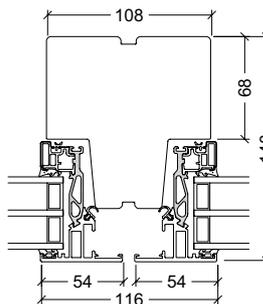
## MULLION AND TRANSOM VARIATIONS



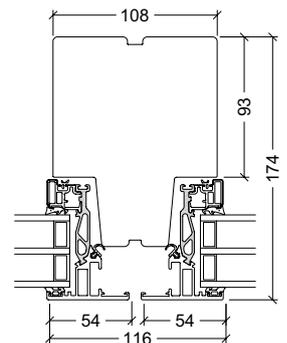
90mm mullion for windows only



90mm transom



114mm transom (mullion)

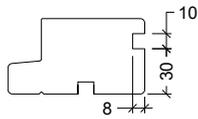


139mm transom (mullion)

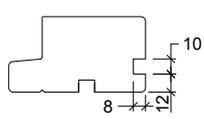
# VELFAC 200 / VELFAC 200 ENERGY – FRAME OPTIONS

## VELFAC 200 - GROOVES, REBATES AND FRAME EXTENSION PACKERS

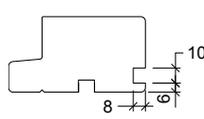
Please note that the grooves, rebates and packers are shown in 90mm, but are also available with 115mm and 140mm frames.



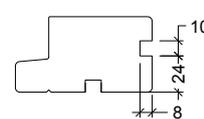
Groove type 30x10x8



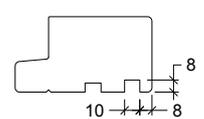
Groove type 12x10x8



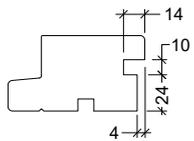
Groove type 6x10x8



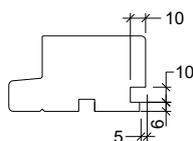
Groove type 24x10x8



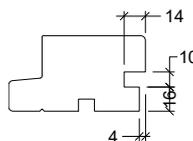
Groove type 10x8x8 E



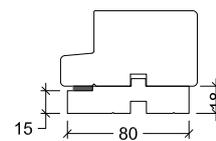
Cill groove type  
24x10x14/4



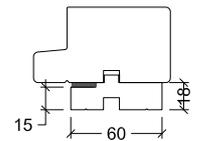
Cill groove type  
6x10x10/5



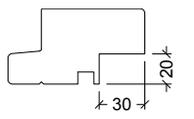
Cill groove type  
16x10x14/4



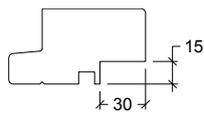
Packer type 18x80



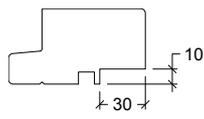
Packer type 18x60  
Also available for sliding  
casement doors



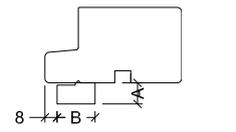
Rebate type 20x30



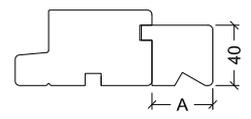
Rebate type 15x30



Rebate type 10x30



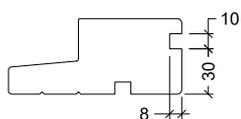
Packer type 14x25 (AxB)  
Packer type 20x35 (AxB)



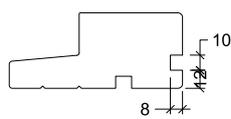
Packer type D40x40 (A)  
Packer type D40x60 (A)

## VELFAC 200 ENERGY - GROOVES, REBATES AND FRAME EXTENSION PACKERS

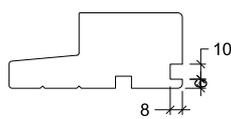
Please note that the grooves, rebates and packers are shown in 114mm, but are also available with 139mm frame.



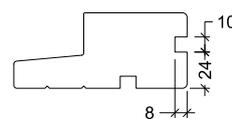
Groove type 30x10x8



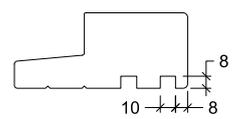
Groove type 12x10x8



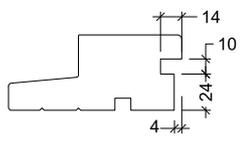
Groove type 6x10x8



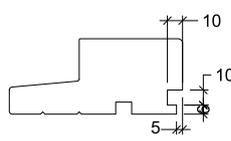
Groove type 24x10x8



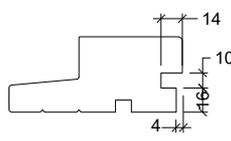
Groove type 10x8x8 E



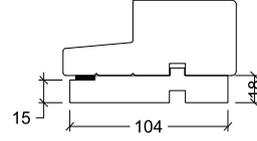
Cill groove type  
24x10x14/4



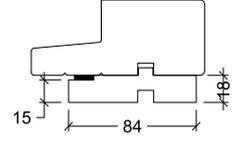
Cill groove type  
6x10x10/5



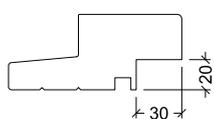
Cill groove type  
16x10x14/4



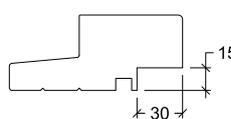
Packer type 18x104



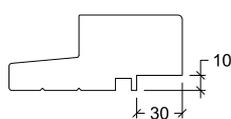
Packer type 18x84  
Also available for sliding  
casement doors



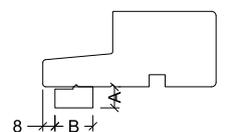
Rebate type 20x30



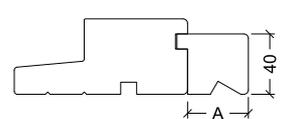
Rebate type 15x30



Rebate type 10x30



Packer type 14x25 (AxB)  
Packer type 20x35 (AxB)



Packer type D40x40 (A)  
Packer type D40x60 (A)

# VELFAC 200 / VELFAC 200 ENERGY – ACCESSORIES

## ESPAGNOLETTES, SECURITY FITTINGS AND ACCESSORIES



**Espagnolette.** Standard in all open functions.



**Espagnolette with lock.** Supplied with lock and key for extra security.



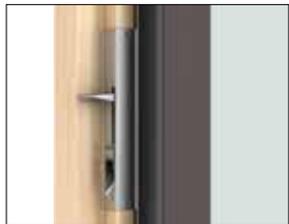
**Espagnolette with child-lock.** Supplied with child-lock button.



**Espagnolette for cylinder lock.** Supplied with or without lock and key.



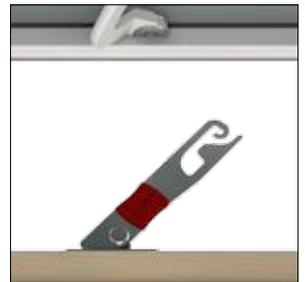
**External handle** for casement and sliding casement door. Supplied separately.



**Flushbolt** for operation of the mullion in 2-leaf elements.



**Standard restrictor w/ventilation position lock.** Not available for sliding casement door.



**Lockable restrictor.** Not available for sliding casement door.



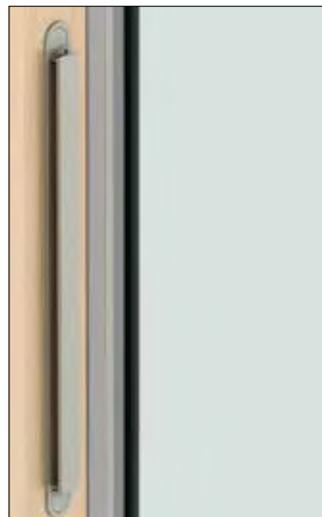
**Electric opener for remote operation** for windows. Can be computer controlled for fully naturally ventilated projects. Fully concealed in the frame. Three chain lengths offering 60mm, 210mm and 440mm clear opening.



**Lockable restrictor.** Not available for sliding casement door.



**Click vent.** Anodized surface finish. Fully concealed. Free ventilation opening in elements with 24mm glazing: 4000mm<sup>2</sup>. Free ventilation opening in elements with 48mm glazing: 3000mm<sup>2</sup>. For the equivalent free opening, please refer to our website.



**Ventilation position.** The striking plate allows a 5mm night ventilation opening for all espagnolette handles.



**Acoustic trickle vent.** The vent is machined into a timber packer with an external aluminium profile in the same colour as the window sashes. Documentation on air flow can be requested. Achieves a sound reduction value of Dn,e,w 40 dB.



# VELFAC IN

INWARD OPENING WINDOWS AND CASEMENT DOORS



Top: Skt. Petersborg Plads, Copenhagen, Denmark / Årstiderne Arkitekter

Bottom: Renovation of the Tax Centre Building, Aarhus, Denmark

# VELFAC IN – OVERVIEW

## CHARACTERISTICS

Inward opening windows and casement door in wood/aluminum

The tilt function provides effective ventilation

Available with safety barrier preparation

Ideal for window cleaning in multi-storey buildings

Uw values down to 0.8 W/m<sup>2</sup>K

48mm triple glazing



Inward opening system with tilt function

## SASH VARIATIONS AND GLAZING BARS

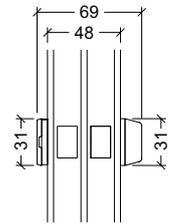


48mm triple glazed opening unit



48mm triple glazed fixed unit

the sash provides a ventilation gap at the head



31mm energy glazing bar



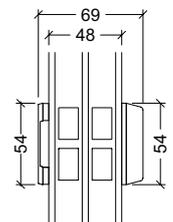
31mm energy glazing bar



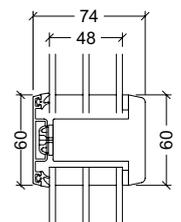
54mm energy glazing bar



60mm glazing bar  
(not available with fixed frame)



54mm energy glazing bar



60mm glazing bar  
(not available with fixed frame)

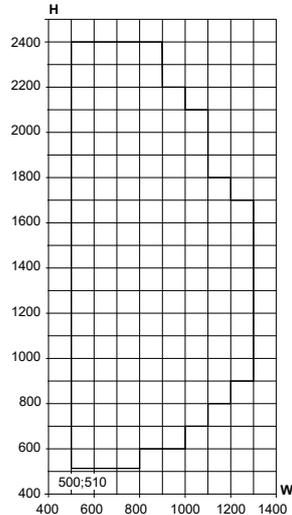
# VELFAC IN – OPENING FUNCTIONS

## SIDEHUNG WINDOW

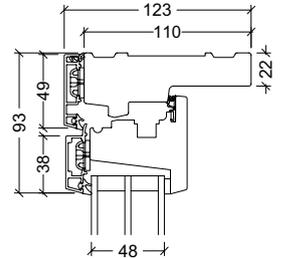
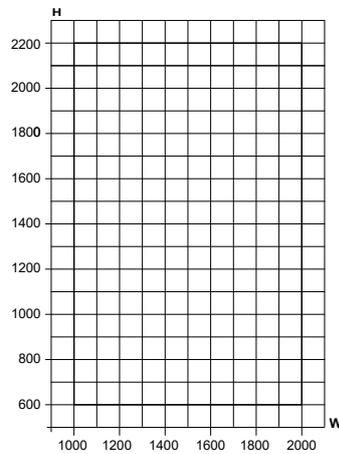


- Is designed to allow safe cleaning of the window from the inside
- Inward opening up to 90°

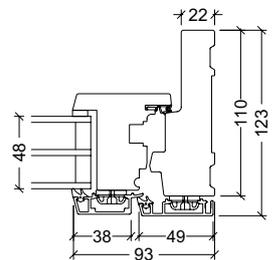
Min./max. sizes, 1-leaf



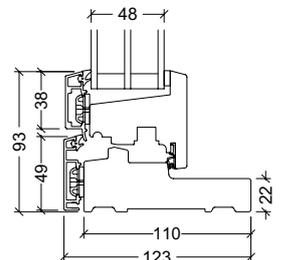
Min./max. sizes, 2-leaf rebated



Head



Jamb



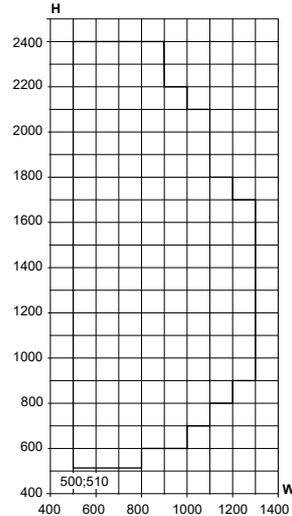
Cill

## TURN AND TILT WINDOW

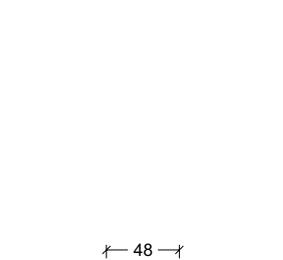
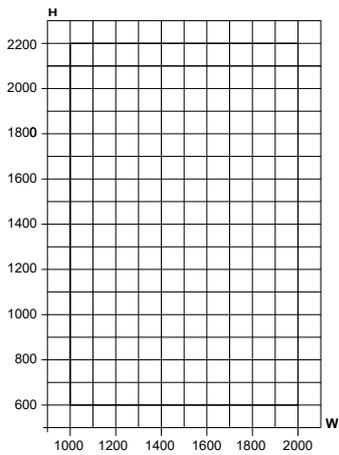


- Is designed to allow safe cleaning of the window from the inside
- Inward opening up to 90°
- Tilt function providing a ventilation gap of approx. 30mm

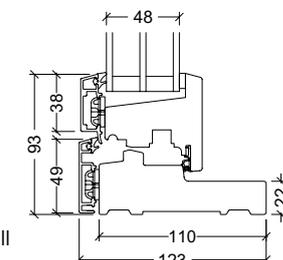
Min./max. sizes, 1-leaf



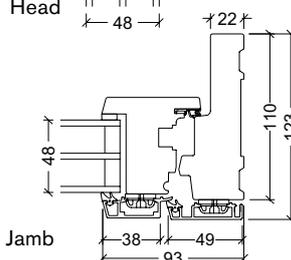
Min./max. sizes, 2-leaf rebated



Head



Cill



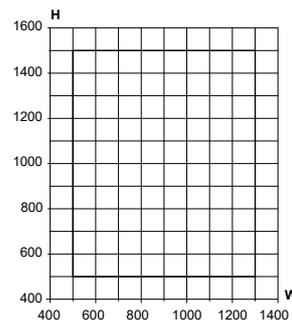
Jamb

## BOTTOMHUNG WINDOW



- Ideal for basement windows
- The window has a tilt function which provides a ventilation gap of approx. 30mm

Min./max. sizes



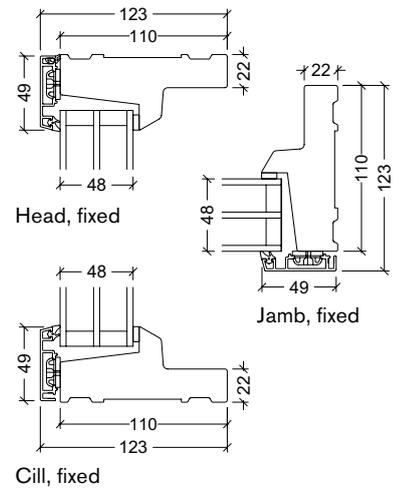
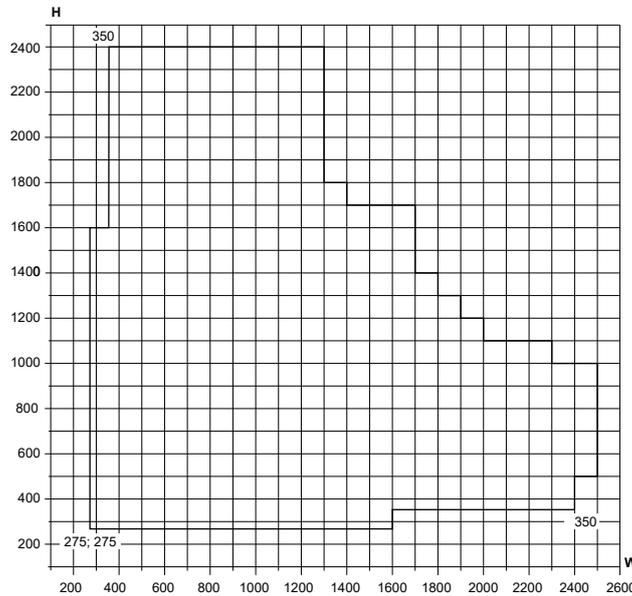
# VELFAC IN – OPENING FUNCTIONS

## FIXED LIGHT



- Only as fixed light
- Because the fixed light has a single frame profile, it has the benefit of slim sightlines
- Can be incorporated above, below and beside a VELFAC In window
- Can be incorporated beside or above a VELFAC In casement door (see photo)

Min./max. sizes

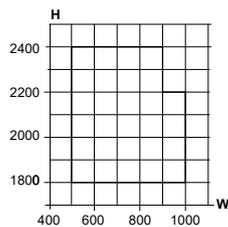


## TURN AND TILT CASEMENT DOOR

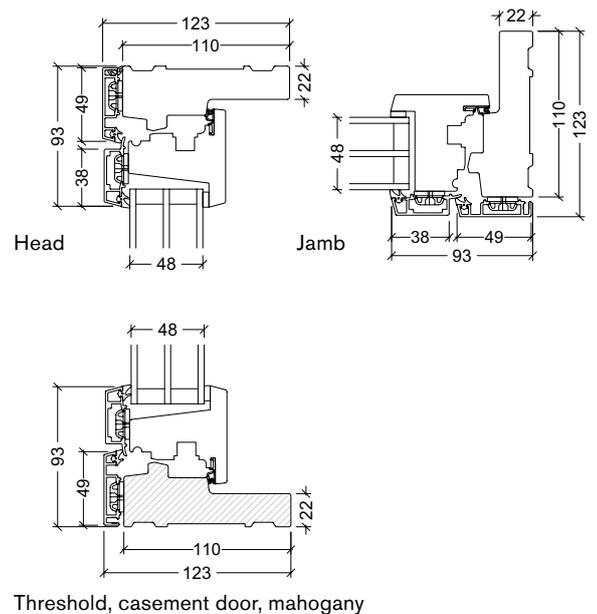
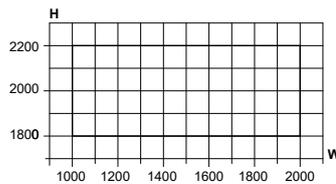


- Ideal for French balconies in multi-storey buildings
- Designed to allow safe cleaning of the door
- Inward opening up to 90°
- Tilt function providing a ventilation gap of approx. 30mm
- The threshold is supplied in mahogany for additional durability

Min./max. sizes, 1-leaf

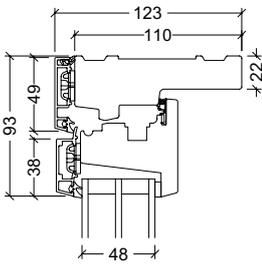


Min./max. sizes, 2-leaf rebated

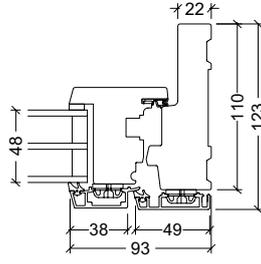


# VELFAC IN – FRAMES, MULLIONS AND GLAZING BARS

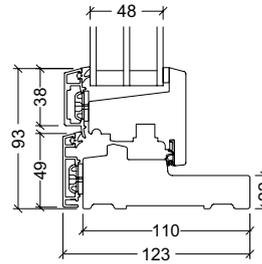
## FRAMES



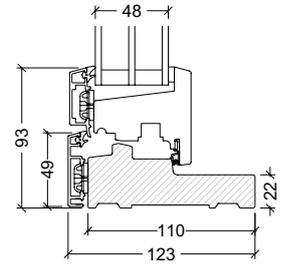
Head



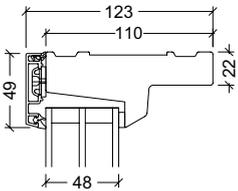
Jamb



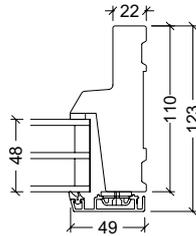
Cill



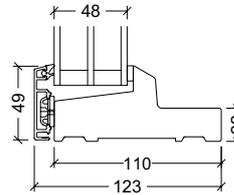
Threshold, casement door, mahogany



Head, fixed

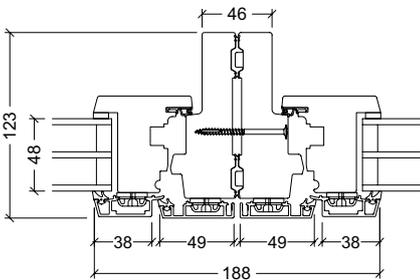


Jamb, fixed

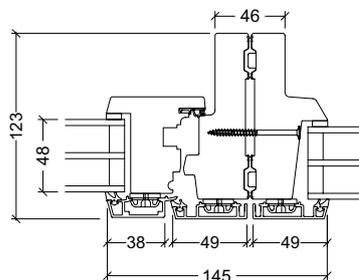


Cill, fixed

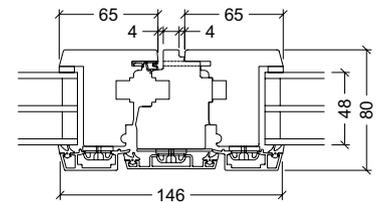
## MULLIONS



Mullion, opening sashes

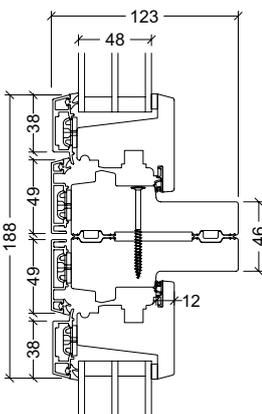


Combination mullion

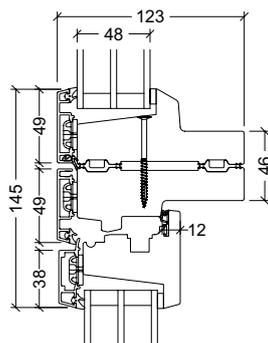


Mullion with French casement

## TRANSOMS



Transom, opening sashes

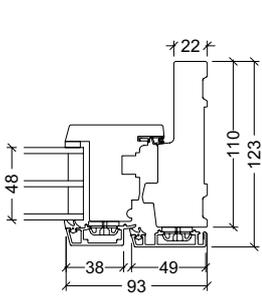


Combination transom

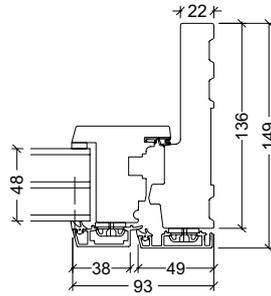
# VELFAC IN – FRAMES AND MULLIONS + ACCESSORIES

## FRAME VARIATIONS

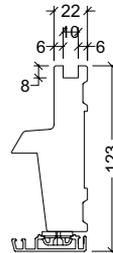
## GROOVE AND PACKER



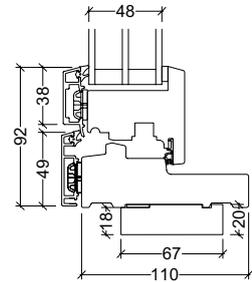
123mm frame



149mm frame

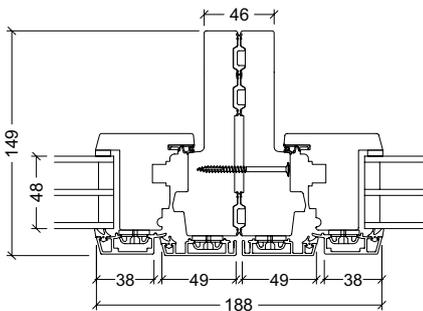


Groove type 6x10x8

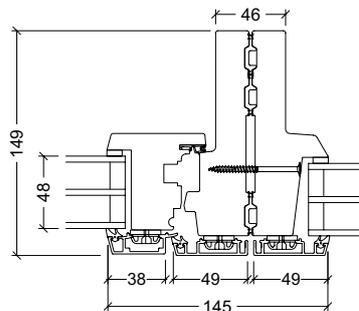


Cill packer type 18x67

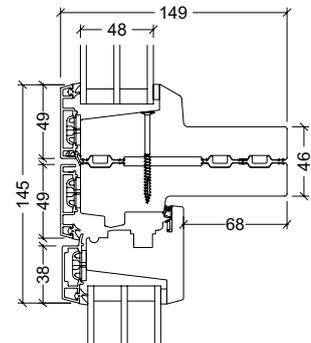
## MULLIONS AND TRANSOMS VARIATIONS



Mullion



Combination mullion



Combination transom

## ESPAGNOLETTES AND ACCESSORIES



**Standard ID-handle.**  
Natural anodised aluminum surface finish.



**ID-handle with child-lock.**  
Natural anodised aluminum surface finish.



**ID-handle with lock.** Natural anodised aluminum surface finish.



**Handle with lock, key operated turn function (TBT).** Allows immediate tilt position. To open the window sidehung, the key must first be turned. Natural anodized aluminum surface finish.



**90° opening restrictor.** Standard in sidehinged sashes.



**Preparation for barrier solution.** Fittings and packers are supplied, barrier should be sourced from another supplier.



**Click vent.** Anodised surface finish. The vent outside is fully concealed with a cover section. Free ventilation opening: 3000mm<sup>2</sup>. For the equivalent free opening, please refer to our website.



# VELFAC 500 – ALUMINIUM DOORS

ENTRANCE DOORS FOR COMMERCIAL, PUBLIC AND RESIDENTIAL BUILDINGS



Top: St Wilfrid's Catholic School, Crawley / Curl la Tourelle Head Architecture

Bottom: Holborough Lakes Primary School, Snodland, Kent / HMY

1-LEAF DOOR WITH ANTI-FINGER TRAP HINGES AND VELFAC 200 SIDE AND TOP LIGHTS



ANODISED ALUMINIUM BARRELL HINGES WITH OPTIONAL SECURITY BOLT



1-LEAF LOUVRED DOOR WITH VELFAC 200 LOUVRE PANEL ABOVE



1-LEAF WITH BARRELL HINGES AND VELFAC 200 SIDE LIGHT



2-LEAF DOOR WITH CRANKED PULL HANDLE AND GLAZING BARS WITHIN A VELFAC 200 SCREEN



2-LEAF ESCAPE DOOR WITH PANIC BARS AND CLOSERS IN A VELFAC 200 SCREEN



# VELFAC 500 – ALUMINIUM GLAZED ENTRANCE DOOR

## CHARACTERISTICS

Entrance doors where reliability, stability and strength of the door are vital

Outward or inward opening, single or double leaf

Glazed entrance doors. If divided by glazing bars the resulting apertures can be glazed or panelled

24mm double or 36mm triple glazed units

VELFAC 500 doors can be coupled with VELFAC 200 windows to create glazed entrance screens

Other fittings than detailed are available



**N.B. The VELFAC 500 System only sold with an order for VELFAC 200.**

## OPENING FUNCTIONS



### Standard fittings

- Deadlock and latch
- Lever handles
- Europrofile cylinder - keyed external, thumbturn internal
- Door closer with hold-open arm, natural anodised
- Slimline barrel hinges, natural anodised
- Flushbolt for slave leaf

### Entrance door (door 1)

- Typical situations include the main entrance to small commercial or public buildings, or a side entrance to larger facilities.



### Standard fittings

- Deadlock with hook bolt
- 300mm cranked pull handles, stainless steel
- Europrofile cylinder - keyed external, thumbturn internal
- Door closer with hold-open arm, natural anodised
- Slimline barrel hinges, natural anodised
- Flushbolt for slave leaf

### Main entrance door (door 2)

- Typical situations include the main entrance to a commercial or public building.

# VELFAC 500 – OPENING FUNCTIONS

## OPENING FUNCTIONS



### Standard fittings

- Electric strike
- Deadlock and latch
- 300mm cranked pull handle external
- Lever handle internal
- Europrofile cylinder - keyed external, thumbturn internal
- Slimline barrel hinges, natural anodised
- Door closer with hold-open arm
- Flushbolt for slave leaf

### Remote access door with electric strike (door 3)

- A remote controlled door designed for installation where restricted access is necessary.
- When activated by the remote access device (not supplied), a portion of the strike retracts allowing the door open.
- The strike plate can be retained in an open position for daytime use by operating a small catch. The door can also be locked when not in use by turning the cylinder to engage the deadbolt.
- Typical situations include restricted entrances to commercial or residential buildings.



### Standard fittings

- Electromagnetic shear lock
- 300mm cranked pull handles, stainless steel
- Slimline barrel hinges, natural anodised
- Door closer with hold-open arm, natural anodised
- Flushbolt for slave leaf

### Remote access door with electric lock (door 4)

- A remote controlled door designed for installation where restricted access is necessary.
- The electric lock is designed for use in high traffic, main entrance doors where there is a need for controlled access.
- When the door is closed and energised, a strong magnetic force is generated which pulls the door leaf to the frame.
- When activated by the remote access device (not supplied), the power supply is interrupted and the door leaf is released.
- Typical entrances to commercial or residential buildings.



### Standard fittings

- Panic deadlock and latch
- Panic bar internal
- Europrofile cylinder - keyed external, thumbturn internal
- Slimline barrel hinges, natural anodised

### Escape door (door 5)

- An outward opening escape door designed for installation where emergency escape is necessary.
- Typical situations include emergency exits from commercial, public or large residential buildings.



### Standard fittings

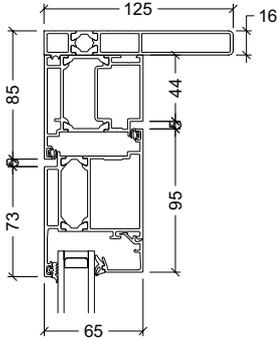
- Security 5 point lock
- Lever handle
- Europrofile cylinder - keyed external and internal
- Security rosette
- Slimline barrel hinges with security bolt, natural anodised
- Flushbolt for slave leaf

### Security door (door 6)

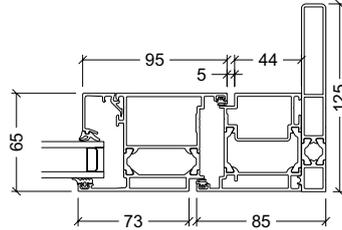
- An entrance door with additional security features designed to provide increased protection from intruders. The door is PAS24 tested.
- Standard fittings must be used with the Security door, there are no additional options.
- Supplied with optional 94mm glazing bars.
- Typical situations main or side entrances to residential buildings.

# VELFAC 500 – FRAMES

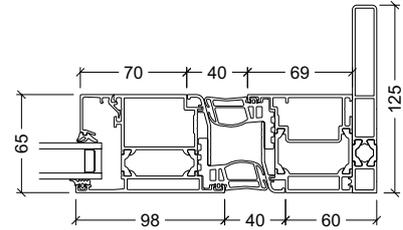
## INWARD OPENING DOORS



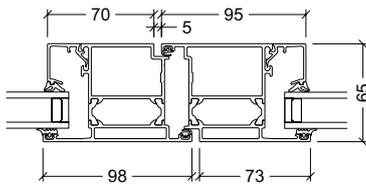
Head



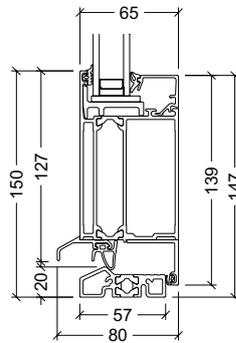
Jamb



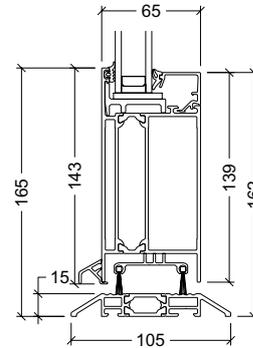
Jamb with finger protection



Rebated meeting style

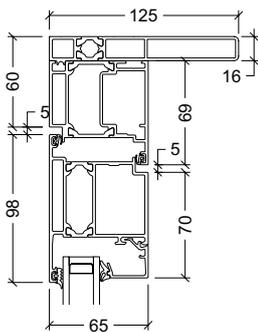


Threshold with thermal break, 20mm

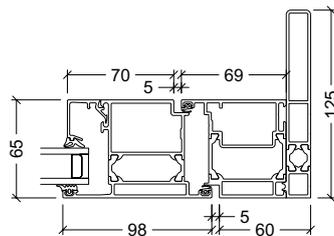


Threshold with thermal break, aluminium 15mm

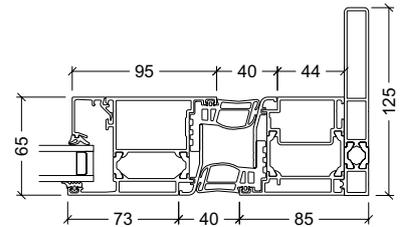
## OUTWARD OPENING DOORS



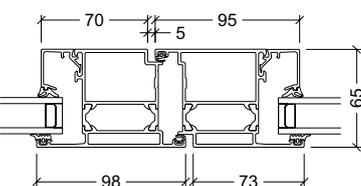
Head



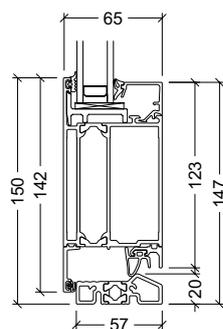
Jamb



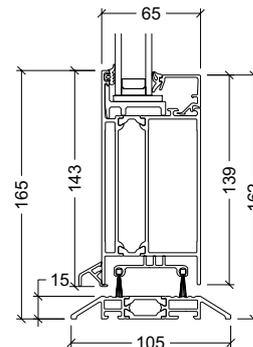
Jamb with finger protection



Rebated meeting style



Threshold with thermal break, 20mm



Threshold with thermal break, aluminium 15mm

# VELFAC 500 – MIN. / MAX.-SIZES

## MIN./MAX. SIZES

### Inward opening doors

Element width* (W)	Min.	Max.
1-leaf	980	1430
2-leaf symmetric (cutting/standing)	1385 (705/680)	2685 (1355/1330)
2-leaf asymmetric (cutting/standing)	1085 (705/380)	2685 (1355/1330)
Element height* (H)	Min.	Max.
	1914	2614

\*Including frame and threshold.

### Outward opening doors

Element width* (W)	Min.	Max.
1-leaf	930	1380
2-leaf symmetric (cutting/standing)	1335 (655/680)	2635 (1305/1330)
2-leaf asymmetric (cutting/standing)	1035 (655/380)	2635 (1305/1330)
Element height* (H)	Min.	Max.
	1873	2573

\*Including frame and threshold.

### Inward opening security door

Element width* (W)	Min.	Max.
1-leaf	980	1100
2-leaf symmetric (cutting/standing)	1385 (705/680)	2200 (1100/1100)
2-leaf asymmetric (cutting/standing)	1085 (705/380)	2200 (1100/1100)
Element height* (H)	Min.	Max.
	1905	2200

\*Including frame and threshold.

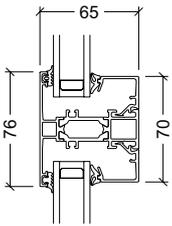
### Outward opening security door

Element width* (W)	Min.	Max.
1-leaf	930	1100
2-leaf symmetric (cutting/standing)	1335 (655/680)	2200 (1100/1100)
2-leaf asymmetric (cutting/standing)	1035 (655/380)	2200 (1100/1100)
Element height* (H)	Min.	Max.
	1873	2200

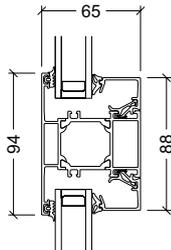
\*Including frame and threshold.

# VELFAC 500 – GLAZING BARS + FRAME DEPTHS

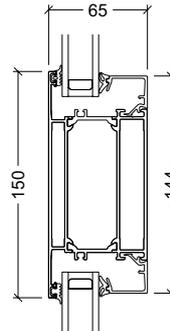
## GLAZING BARS



76mm

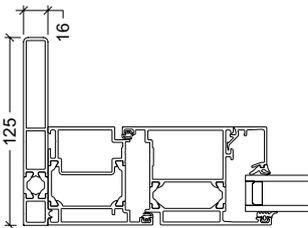


94mm

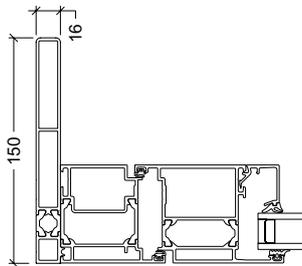


150mm

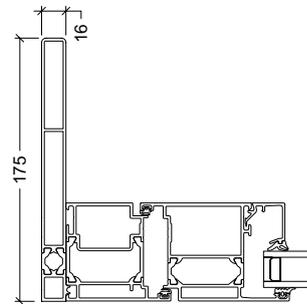
## FRAME DEPTHS



125mm frame



150mm frame



175mm frame

# VELFAC 500 – ACCESSORIES

## HANDLES AND ACCESSORIES



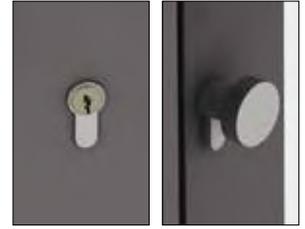
**Lever handle.** Natural anodised surface finish.



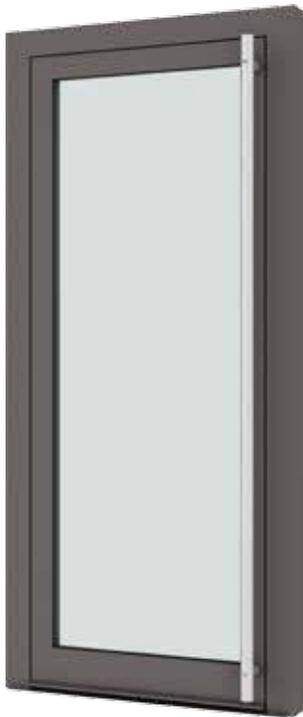
**Stainless steel handle.** Polished surface finish.



**Emergency escape handle.** Only available for outward opening doors. Natural anodised surface finish.



**Europrofile cylinder.** Keyed external, thumbturn internal. Nickel-plated surface finish, key in stainless steel.



**Full height pull handle** in stainless steel. Semigloss brushed surface finish.



**300mm cranked pull handle** in stainless steel. Semigloss brushed surface finish. Also available as 650mm handle.



**300mm circular pull handle** in stainless steel. Semigloss brushed surface finish.



**Panic bar** for outward opening doors only. Natural anodised aluminium surface finish.



**Barrel hinge** with or without security bolt. Natural anodised surface finish.



**Anti-finger trap hinge.** Natural anodised surface finish.



**Letter box** in 150mm glazing bar only. Natural anodised surface finish.



**Standard door closer** for inward and outward opening doors. Silver painted surface finish. NB. We have a range of door closers with different functionality and looks. Please ask for further information regarding your project.





## VELFAC RIBO WOOD/ALUMINIUM DOORS

MAIN ENTRANCE DOORS FOR DOMESTIC BUILDINGS AND SECONDARY  
ENTRANCE DOORS FOR COMMERCIAL, PUBLIC AND RESIDENTIAL BUILDINGS



Photographer: Adam Mørk

Top: Open Academy, Norwich / Sheppard Robson

Bottom: Day Care Centre, Hørsholm, Denmark / Christensen & Co.

INWARD OPENING FLUSH DOOR AND GLAZED & PANELLED ENTRANCE DOOR



INWARD OPENING GLAZED ENTRANCE DOOR



INWARD OPENING FLUSH ENTRANCE DOOR AND VELFAC 200 FIXED SIDELIGHTS



INWARD OPENING GROOVED FLUSH ENTRANCE DOOR AND VELFAC 200 FIXED SIDELIGHT



INWARD OPENING FLUSH ENTRANCE DOOR AND VELFAC 200 FIXED SIDE/TOP LIGHT



OUTWARD OPENING GLAZED ENTRANCE DOOR WITH GLAZING BARS AND A VELFAC 200 WINDOW



# VELFAC WOOD / ALU DOORS – OVERVIEW

## CHARACTERISTICS

Main entrance doors for domestic buildings

Secondary entrance doors in public buildings and office blocks

Outward or inward opening, single or double leaf

Flush entrance doors in a number of external designs and a range of glass apertures

Glazed entrance doors. If divided by glazing bars the resulting apertures can be glazed or panelled

Available with 32mm double and 52mm triple glazed units

VELFAC Ribo doors can be coupled with VELFAC 200 windows to create glazed entrance screens



**N.B. The VELFAC Ribo Door System only sold with an order for VELFAC 200.**

## GLAZING BARS FOR GLAZED ENTRANCE AND PATIO DOORS



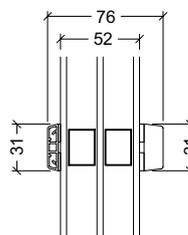
31mm

68mm

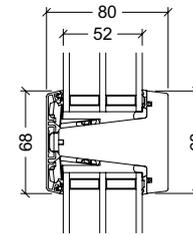


68mm

68mm



31mm energy glazing bar, 3 layer glazing

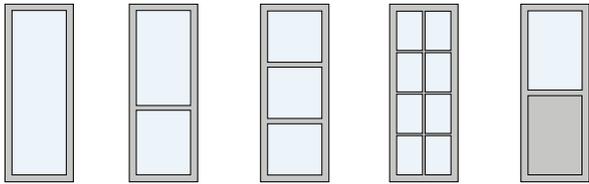


68mm glazing bar, 3 layer glazing

# VELFAC WOOD / ALU DOORS – DESIGN

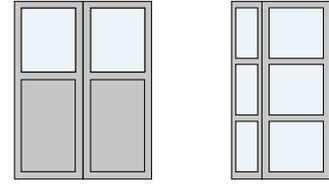
## EXAMPLES OF STANDARD GLAZED DOORS AND GLAZING BAR CONFIGURATIONS

### Configuration examples



1. 2. 3. 4. 5.

### Examples of 2-leaved glazed doors

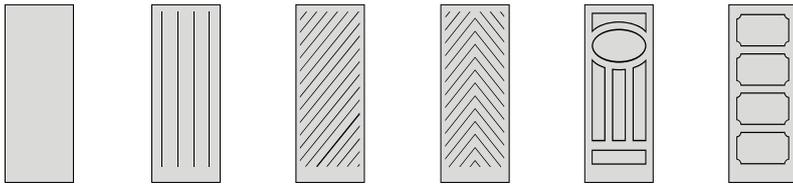


Symmetric double door

Asymmetric double door

## STANDARD FLUSH DOOR DESIGNS AND WINDOW TYPES

### Standard flush door designs



Smooth Code 10

Vertical Code 20

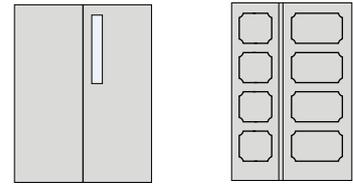
Sloping left/right Code 30/31

Herringbone Code 40

Classic Code 50

Antique Code 60

### Examples of 2-leaved flush doors



Symmetric

Asymmetric

### Standard flush door window types



Square Code 10

Rectangle Code 20

Diamond Code 30

Circle Code 40

Oval Code 50

Half Moon Code 70 Code 60 without glazing bars

There are some limitations when combining design and window shape. Please call VELFAC for further information.

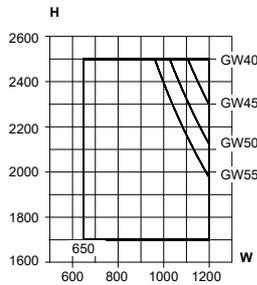
# VELFAC WOOD / ALU DOORS – OPENING FUNCTIONS

## GLAZED ENTRANCE DOORS

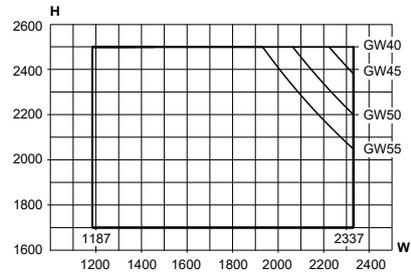


Outward opening    Inward opening

Min./max.-sizes, 1-leaf



Min./max.-sizes, 2-leaf



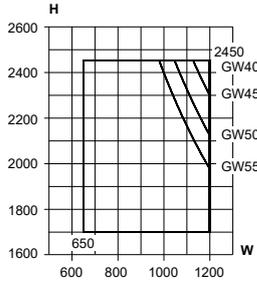
- Comprises timber sections with external aluminium profiles
- Can be divided by glazing bars with the resulting apertures glazed or panelled
- Outward or inward opening
- 3 closing points. Can be supplied with single closing point
- Lock box for oval cylinder
- Threshold: 18mm (outward opening) / 22.5mm (inward opening)

## FLUSH ENTRANCE DOORS

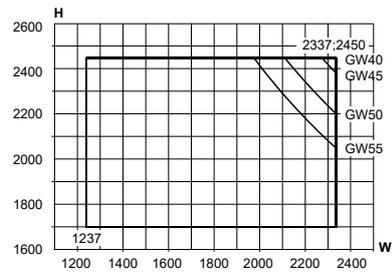


Outward opening    Inward opening

Min./max.-sizes, 1-leaf



Min./max.-sizes, 2-leaf



- Comprises timber sections with external aluminium profiles to the outer frame only
- Leaves are provided with a timber veneer
- The smooth or grooved external finish (the internal finish is smooth) is available in several designs and incorporates a range of glass apertures
- Inward or outward opening
- With optional kick-plates internally and externally
- 3 closing points. Can be supplied with single closing point
- Lock box for oval cylinder
- Threshold: 18mm (outward opening) / 22.5mm (inward opening)

GW = glass weight  
(see page 80)

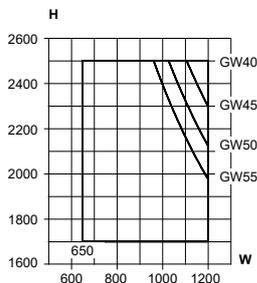
# VELFAC WOOD / ALU DOORS – OPENING FUNCTIONS

## PATIO DOORS

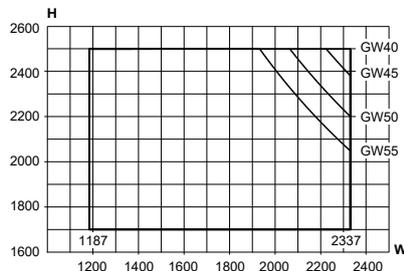


Outward opening    Inward opening

Min./max.-sizes, 1-leaf



Min./max.-sizes, 2-leaf

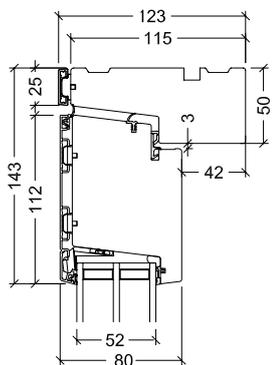


- Available as inward and outward opening
- The inward opening is suitable for Juliette door solutions
- Opens up to approx. 90° (180° is optional in outward opening doors)
- Internal espagnolette handles with oval cylinder-lock as standard, and optional external handles to provide access
- For Juliette doors however typically with espagnolette handle and cylinder lock internally only
- Handle operated brake, which means the door can be held open anywhere between 0-90° (not available in combination with 180° hinge)
- Threshold: 18mm (outward opening) / 22.5mm (inward opening)

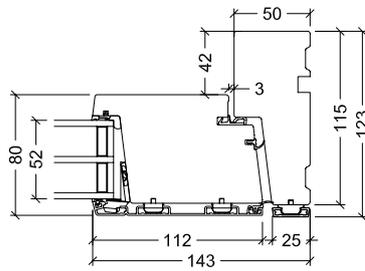
GW = glass weight  
(see page 80)

# VELFAC WOOD / ALU DOORS – FRAMES AND MULLIONS

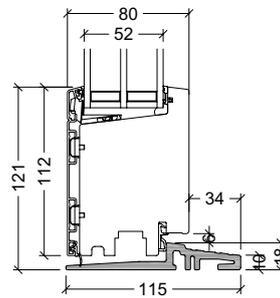
## GLAZED ENTRANCE AND PATIO DOOR - OUTWARD OPENING



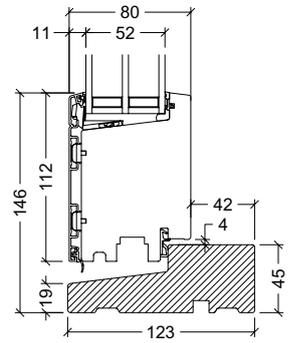
Head



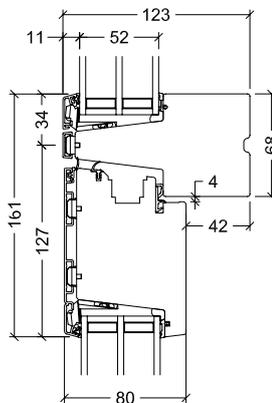
Jamb



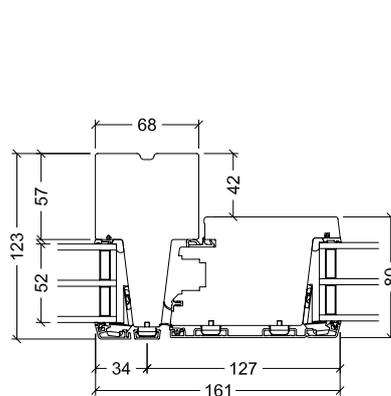
18mm HELO® threshold



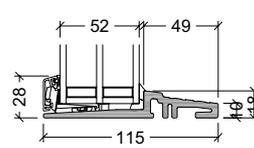
45mm threshold, hard wood



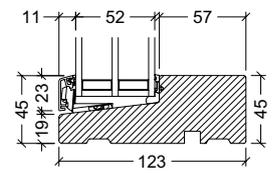
Transom, fixed sidelight



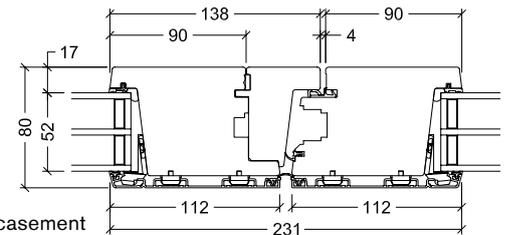
Mullion, fixed sidelight



Cill, fixed sidelight

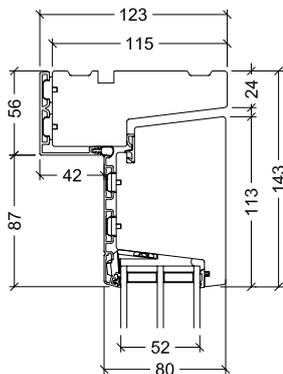


Cill, fixed sidelight

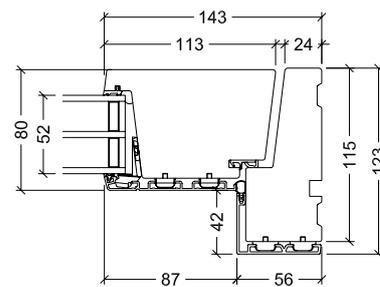


Mullion, French casement

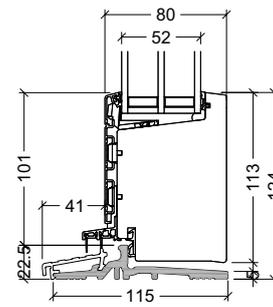
## GLAZED ENTRANCE AND PATIO DOOR - INWARD OPENING



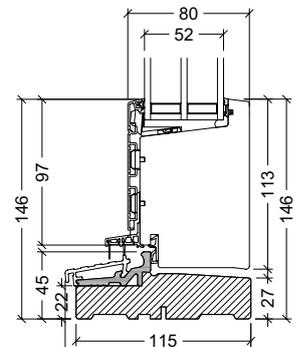
Head



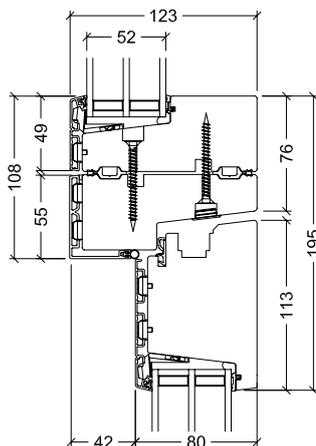
Jamb



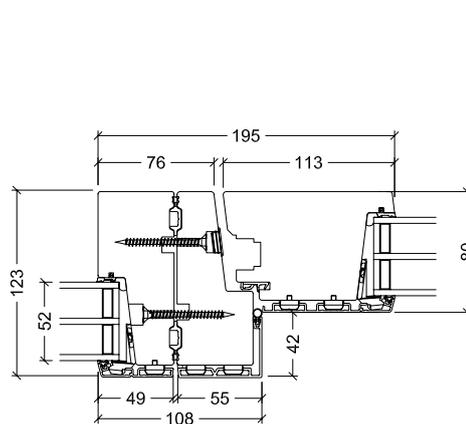
22.5mm HELO® threshold



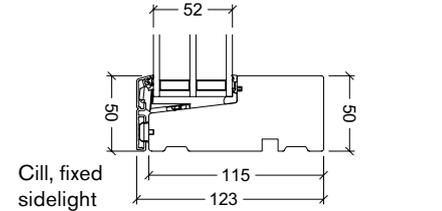
45mm threshold, hard wood



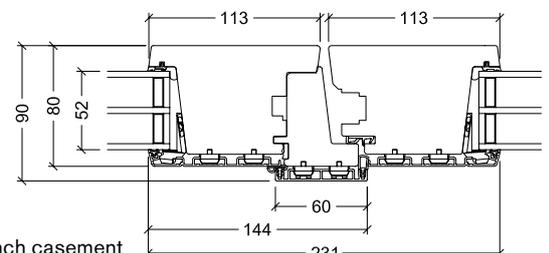
Transom, fixed sidelight



Mullion, fixed sidelight



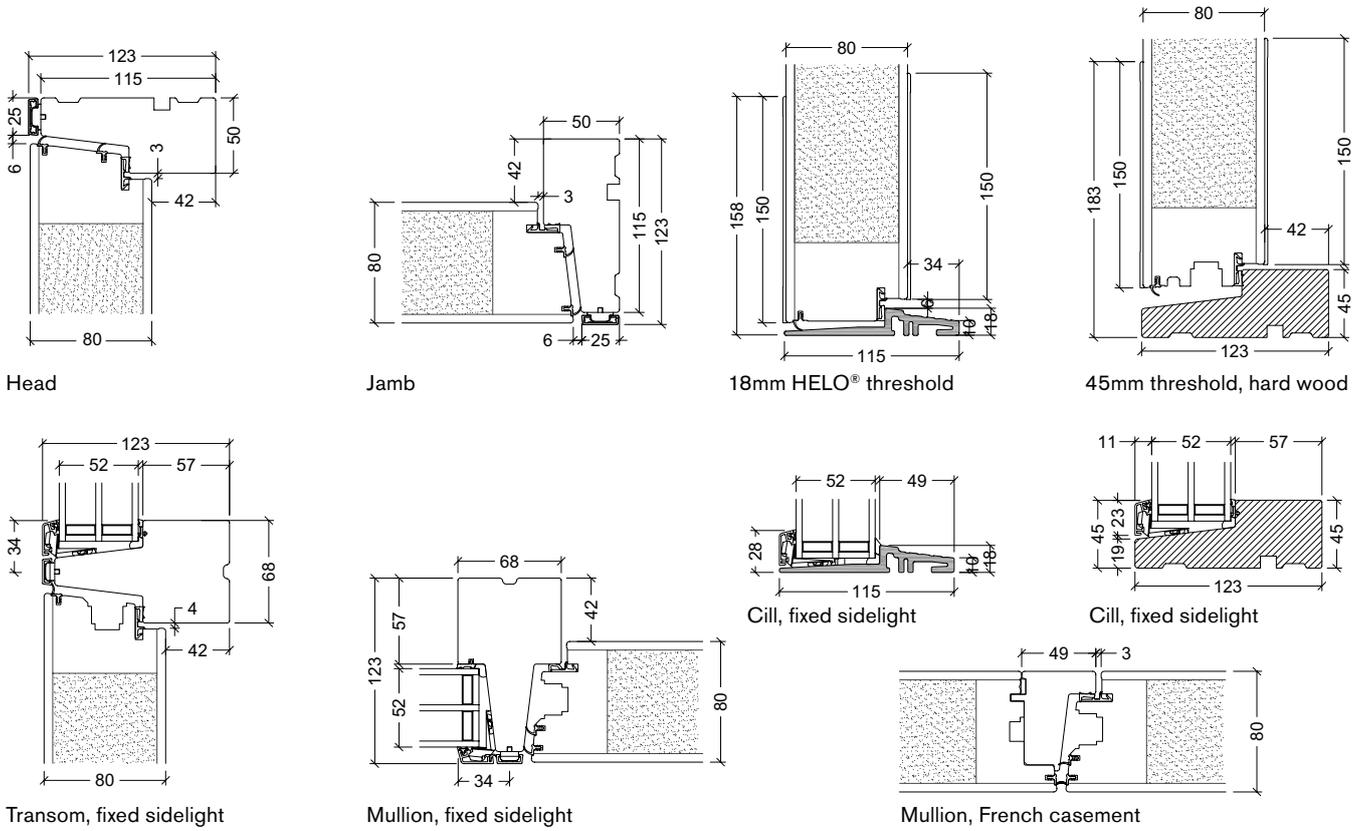
Cill, fixed sidelight



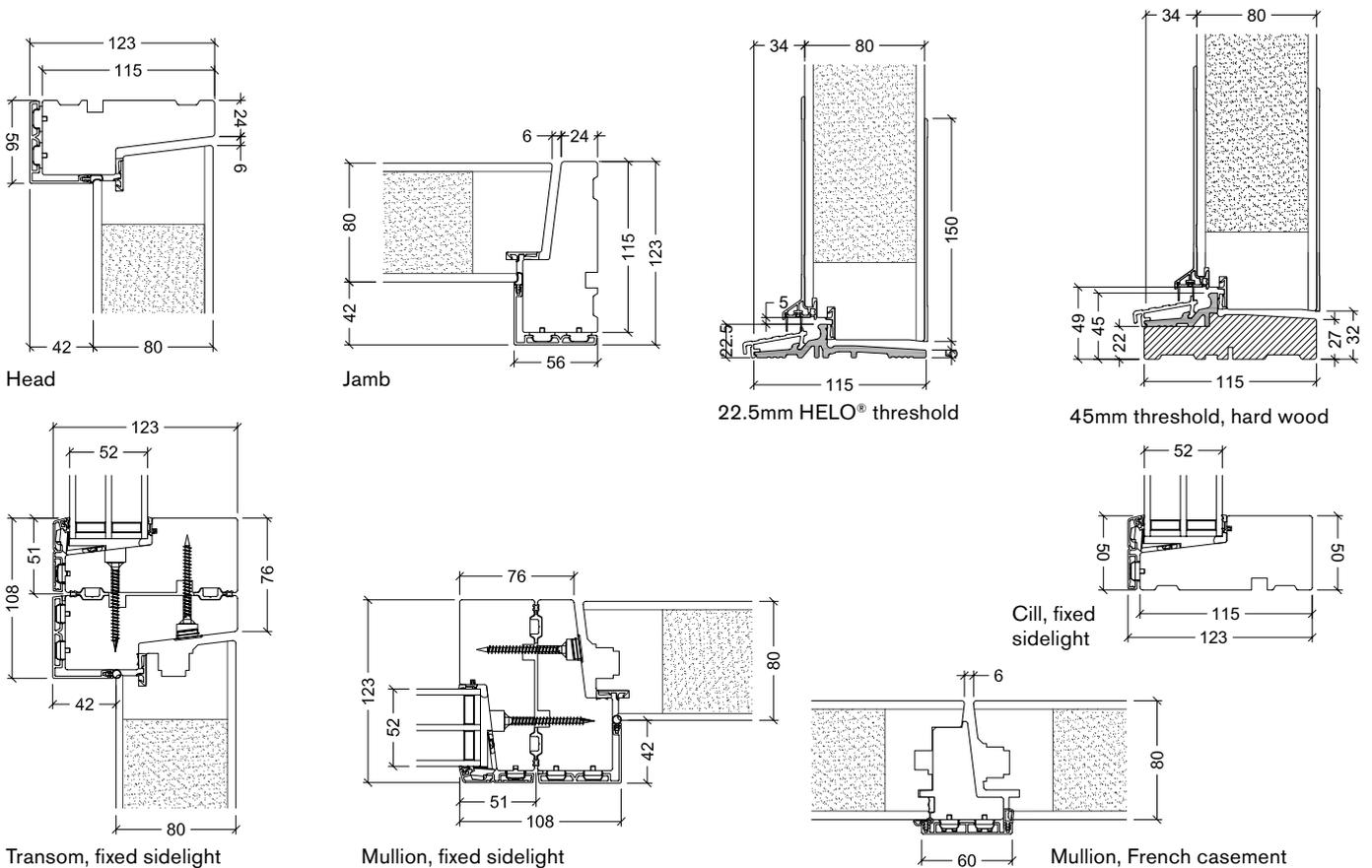
Mullion, French casement

# VELFAC WOOD / ALU DOORS – FRAMES AND MULLIONS

## FLUSH ENTRANCE DOOR - OUTWARD OPENING

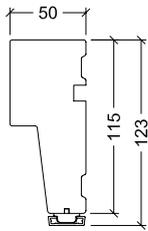


## FLUSH ENTRANCE DOOR - INWARD OPENING

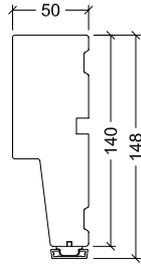


# VELFAC WOOD / ALU DOORS – FRAME OPTIONS

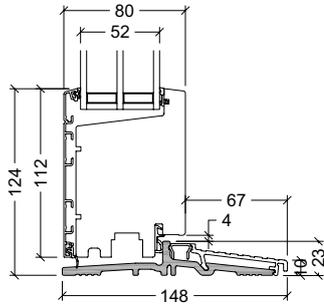
## FRAME VARIATIONS - OUTWARD OPENING



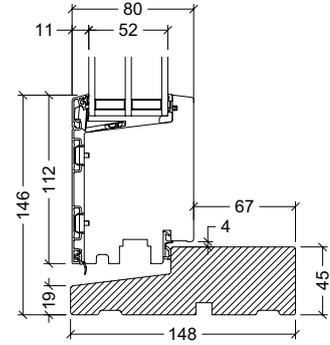
123mm side frame



148mm side frame

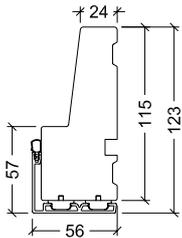


22.5mm threshold for 148mm frame

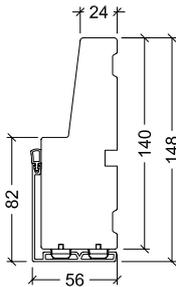


45mm threshold for 148mm frame

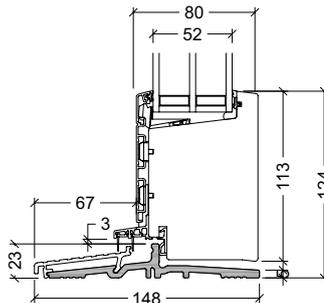
## FRAME VARIATIONS - INWARD OPENING



123mm side frame



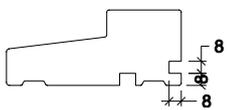
148mm side frame



22.5mm threshold for 148mm frame

## GROOVES AND FRAME EXTENSION PACKERS

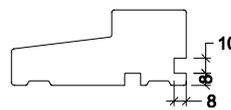
Please note that the grooves and packers are shown in 115mm (123mm) frame, but are also available with 140mm (148mm) frames.



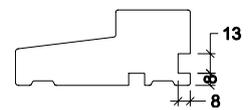
Groove type 8x8x8  
Outward opening doors



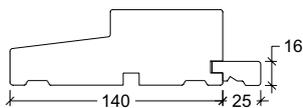
Groove type 8x8x8  
Inward opening doors



Groove type 8x10x8  
Outward opening doors



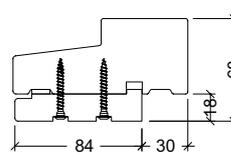
Groove type 8x13x8  
Outward opening doors



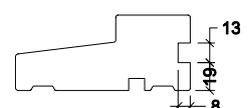
Depth packer type 16-25  
in groove type 8x8x8  
Outward opening doors  
(for 140mm frame only)



Depth packer type 16-25  
in groove type 8x8x8  
Inward opening doors  
(for 140mm frame only)



Packer type 18x84



Groove type 19x13x8  
Outward opening doors

## VELFAC WOOD / ALU DOORS – ACCESSORIES

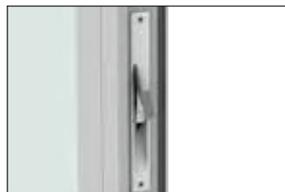
### HANDLE AND ACCESSORIES FOR ENTRANCE DOORS



**Lever handle and cylinder.** 6-lever cylinder in stainless steel.



**Lever handle and internal thumbturn.** 6-lever cylinder in stainless steel.



**Flushbolt** for operation of the mullion in 2-leaf doors.



**Click vent.** For outward opening doors only. Natural anodised surface finish. Free ventilation opening 4000mm<sup>2</sup>. Documentation on air flow can be requested.



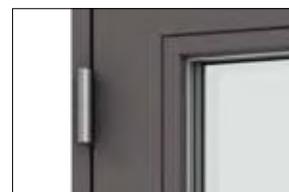
**Spy hole** for flush doors only. Polished brass.



**Letter plate.** For flush doors only. Position is UK Royal Mail compliant.



**Door closer** here on the inward opening door. Supplied separately. Surface finish in painted silver.



**180° hinge** for outward opening doors.

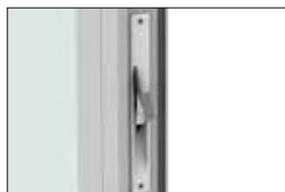
### HANDLE AND ACCESSORIES FOR THE PATIO DOORS



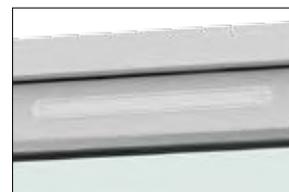
**Espagnolette handle seen from inside.** 6-lever cylinder in stainless steel.



**Espagnolette handle seen from outside.** With blank cover or cylinder.



**Flushbolt** for operation of the mullion in 2-leaf doors.



**Click vent.** For outward opening doors only. Natural anodised surface finish. Free ventilation opening 4000mm<sup>2</sup>. Documentation on air flow can be requested.



**180° hinge** for outward opening doors. Not available with handle operated brake.



# VELFAC PANELS

PANELS FOR WINDOWS AND DOORS



Top: Elisabeth II Court, Hampshire County Council / Bennetts Associates Architects

Bottom: Avondale Square, London / reForm Architects

# VELFAC PANELS

VELFAC 200 FAÇADE WITH VENTILATED ALUMINIUM PANELS AND RAINSCREEN PANELS



VELFAC 200 FACADE WITH VENTILATED 'LOOK-ALIKE' PANELS (SHADOW-BOX)



VELFAC 200 FAÇADE WITH LOUVRE PANEL AND NON-VENTILATED CEDAR PANEL



FAÇADE WITH VELFAC 200 WINDOWS AND RAINSCREEN PANELS



## VELFAC 200 + VELFAC 500 PANEL ELEMENTS

## TYPES OF PANELS PER SYSTEM

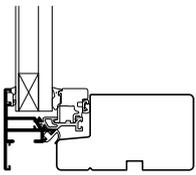
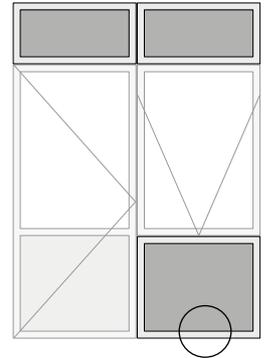
PANEL ELEMENT	WINDOW- / DOOR SYSTEM						PANEL BOARDS				
	VELFAC 200	VELFAC 500	Aluminium	Laminated board	Enamel glass	Shadow-box	Cedar	Rockpanel	Louvre panel	Backboard	Internal door
Ventilated panel	x		x	x	x	x				x	
Sandwich panel	x	x	x	x							
Non-ventilated panel	x						x	x		x	
Louvre panel	x	x							x	x	
Louvre panel w/internal door	x								x		x
Rainscreen with frame	x		x							x	

## MATERIALS FOR VELFAC 200 AND VELFAC 500 PANELS

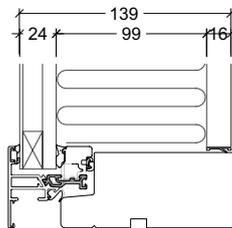
Board information	Materials	Colours	Thickness of board	Weight
<b>Aluminium plate</b>	Powder coated or anodised aluminum. N.B. Medium resistance to kicks or ball dents, etc	Same colour and finish range as VELFAC window sashes.	Sandwich: 1.5mm Ventilated: 2mm Rainscreen: 2mm	1.5mm: 4 kg/m <sup>2</sup> 2mm: 5.4 kg/m <sup>2</sup>
<b>Laminated board</b>	A compact resin laminated board, specially designed for external use. Resistant to most common chemicals, kicks, ball dents and vandalism. Does not melt in fire.	K1040 (NCS S 0502-G50Y) F7927 (NCS S 2500-N) F7912 (NCS S 6502-B)	Ventilated: 6mm Façade panel: 6mm	6mm: 8.4 kg/m <sup>2</sup>
<b>Enamel glass</b>	Toughened glass with hard-fired painted reverse.	RAL 7011 RAL 9005 RAL 7016 RAL 9010 RAL 7024 RAL 9016 RAL 7026 RAL 9018	Ventilated: 6mm Façade panel: 6mm	6mm: 15 kg/m <sup>2</sup>
<b>Shadow-box (Look-alike)</b>	A double glazed unit with 6mm clear glass externally and 6mm enamel glass internally.	RAL 7031 RAL 7035	Shadowbox: 24mm	25 kg/m <sup>2</sup>
<b>Cedar</b>	A diffusion open, composite timber board faced with cedar slats and no visible fixings.	Untreated Western Redwood Cedar	Non-ventilated: 24mm	15 kg/m <sup>2</sup>
<b>Rockpanel</b>	A diffusion open façade panel consisting of compressed water resistant Rockwool.	RAL 1013 RAL 7022 RAL 1015 RAL 7030 RAL 3004 RAL 7031 RAL 5011 RAL 7035 RAL 6009 RAL 8028 RAL 7004 RAL 9001 RAL 7016 RAL 9005 RAL 7021 RAL 9010	Non-ventilated: 8mm Façade panel: 8mm	1.05 kg/m <sup>2</sup>
<b>Louvre panel</b>	Aluminium. 30mm between the blades. Insect screen included.	Natural anodised or powder coated in a wide selection of RAL colours		12 kg/m <sup>2</sup>

# VELFAC 200 VENTILATED PANEL

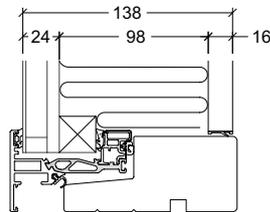
## DETAILS, MIN./MAX.-SIZES AND $U_{\text{panel}}$ -VALUES



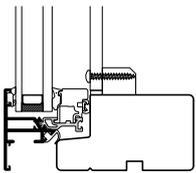
VELFAC 200  
Ventilated panel  
without backboard



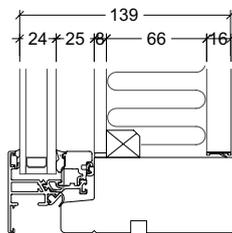
VELFAC 200  
Ventilated panel with back-  
board



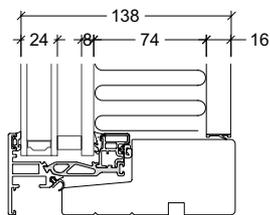
VELFAC 200 ENERGY  
Ventilated panel with back-  
board



VELFAC 200  
Shadow-box without  
backboard



VELFAC 200  
Shadow-box with  
backboard



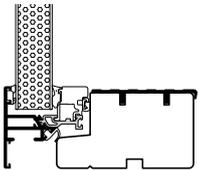
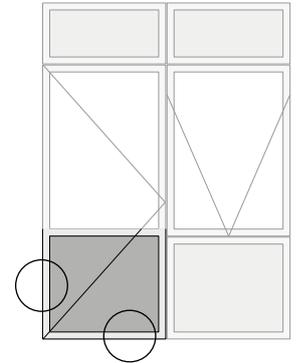
VELFAC 200 ENERGY  
Shadow-box with  
backboard

HxW and WxH measured in mm	Max. for panel element with backboard VELFAC 200 / 200 ENERGY
Enamel glass	2500 × 1340
Aluminium plate	2500 × 1340
Laminated plate	2500 × 1340
Shadow-box	2500 × 1340

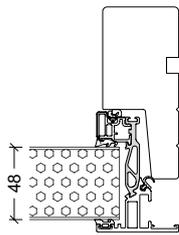
Panel with insulation ( $\lambda=0.02$ ) and backboard	$U_{\text{panel}}$ -value (centre value in $W/m^2K$ )			
	VELFAC 200		VELFAC 200 ENERGY	
Element depth	124mm	149mm	149mm	174mm
Enamel glass (24mm)	0.24	0.18		
Enamel glass (48mm)			0.19	0.15
Aluminium plate	0.24	0.18	0.19	0.15
Laminated plate	0.24	0.18	0.19	0.15
Shadow-box	0.37	0.25	0.23	0.18

# VELFAC 200 + VELFAC 500 SANDWICH PANELS

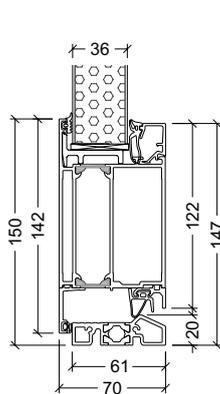
## DETAILS, MIN./MAX.-SIZES AND $U_{\text{panel}}$ -VALUES



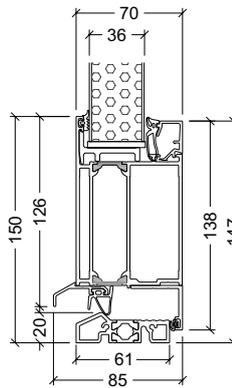
VELFAC 200  
Sandwich panel



VELFAC 200 ENERGY  
Sandwich panel



VELFAC 541  
Sandwich panel



VELFAC 542  
Sandwich panel

HxW and WxH measured in mm	Max. for panel element VELFAC 200 / 200 ENERGY	Max. for panel plate VELFAC 500
Aluminum plate	1500 x 3000	1500 x 3000
Laminated plate	1290 x 3050	1290 x 3050

Min./max. sizes for the selected opening function may influence the size.  
Min./max. sizes for door panels = Min./max. sizes for the door

Sandwich panel	$U_{\text{panel}}$ -value (centre value in $W/m^2K$ )		
	VELFAC 200 / 200 ENERGY		VELFAC 500
Glazing	24mm	48mm	36mm
Aluminium plate	0.99	0.52	0.67
Laminated plate	1.02	0.52	

# VELFAC 200 NON-VENTILATED PANEL

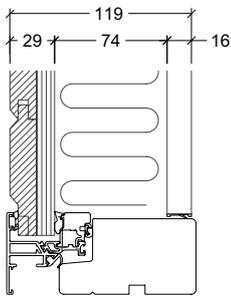
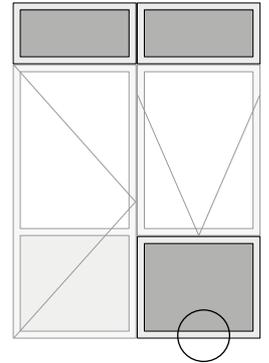
## DETAILS, MIN./MAX.-SIZES AND $U_{\text{panel}}$ -VALUES



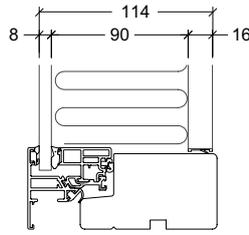
VELFAC 200 with cedar



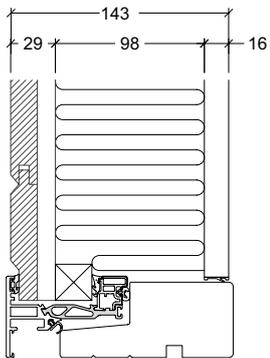
VELFAC 200 with rockpanel



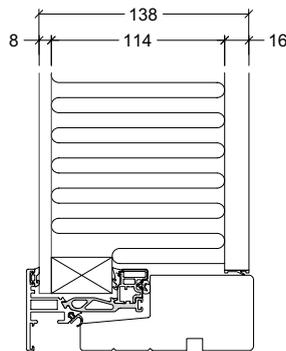
VELFAC 200  
Non-ventilated panel  
with Cedar



VELFAC 200  
Non-ventilated rockpanel



VELFAC 200 ENERGY  
Non-ventilated panel  
with Cedar



VELFAC 200 ENERGY  
Non-ventilated rockpanel

HxW and WxH measured in mm	Max. for panel element with backboard
	VELFAC 200 / 200 ENERGY
Cedar (WxH only)	2500 × 1340
Rockpanel	1275 × 3125

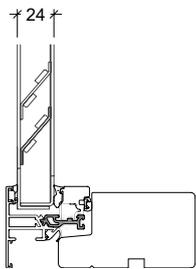
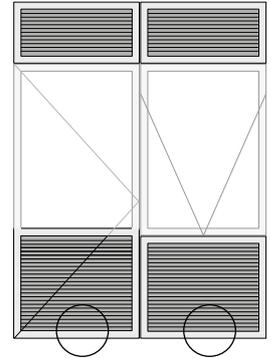
Panel with insulation ( $\lambda=0.02$ ) and back-board	$U_{\text{panel}}$ -value (centre value in $W/m^2K$ )			
	VELFAC 200		VELFAC 200 ENERGY	
Element depth	124mm	149mm	149mm	174mm
Cedar panel	0.33	0.23	0.18	0.15
Rockpanel	0.21	0.16	0.17	0.14

# VELFAC 200 + VELFAC 500 LOUVRE PANELS

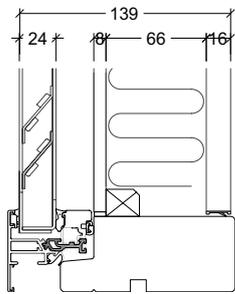
## DETAILS, MIN./MAX.-SIZES AND $U_{\text{PANEL}}$ -VALUES



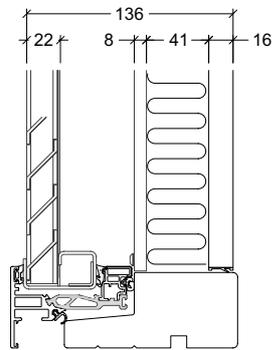
VELFAC 200 with louvre panel



VELFAC 200 louvre panel with fly mesh only



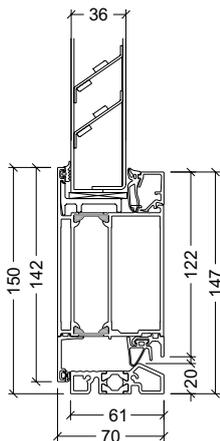
VELFAC 200 louvre panel with intermediate board and backboard



VELFAC 200 ENERGY louvre panel with intermediate board and backboard



VELFAC 500 with louvre panel



Louvre panel with fly mesh only

$U_{\text{panel}}$ -value (centre value in $W/m^2K$ )				
	VELFAC 200		VELFAC 200 ENERGY	
Element depth	124mm	149mm	149mm	174mm
Panel with insulation ( $\lambda=0.02$ ) and backboard	0.42	0.28	0.41	0.27

HxW and WxH measured in mm	Max. for panel element		Max. for panel plate	
	VELFAC 200		VELFAC 500	
Louvre panel with:	WxH	HxW	WxH	HxW
fly mesh only	2000 x 1255	3000 x 830	2400 x 1322	1922 x 1322
intermediate board	2000 x 1255 1360 x 1360	1825 x 1360 3000 x 830		
intermediate board and backboard	2000 x 1255 1320 x 1320	1900 x 1320 2590 x 964		

Min./max. sizes for the selected opening function may influence the size.

# VELFAC LOUVRE PANEL WITH INTERNAL DOOR

## DETAILS, MIN./MAX.-SIZES AND $U_{\text{panel}}$ -VALUES



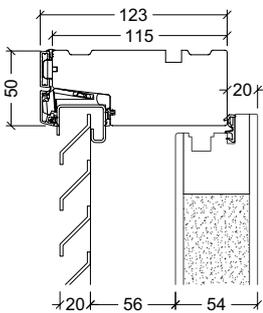
- Grooved 50mm sightlines
- Internal handle in matt chrome surface finish
- Handle operated brake, which means the door can be held open anywhere between 0-90° (doors where width <580mm only)
- Internal finish to door can be smooth or when painted with vertical grooves



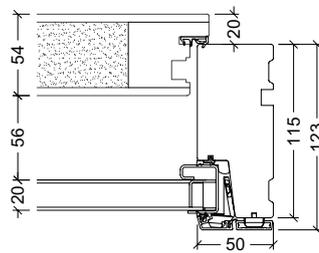
View from outside



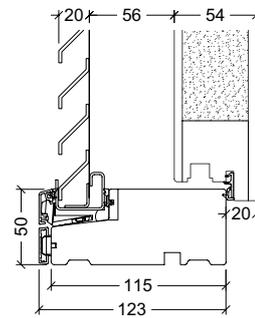
View from inside



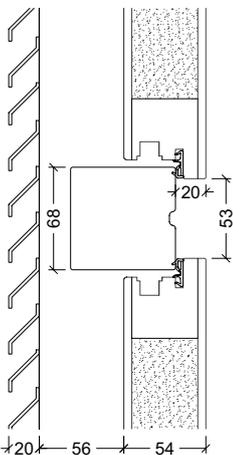
Head



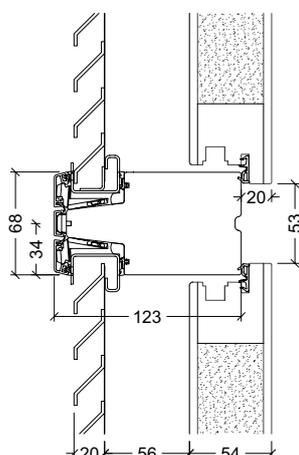
Jamb



Cill



Hidden transom  
(1 external panel)



Visible transom  
(2 external panels)

	Max. for panel element	
	w/ 1 internal door	w/ 2 internal doors
measured in mm	WxH	WxH
Min. size	350 x 580	350 x 1380
Max. size	872 x 1680	872 x 2872

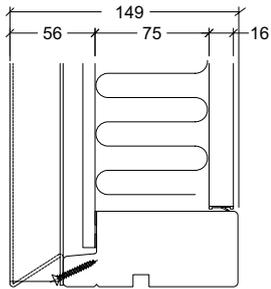
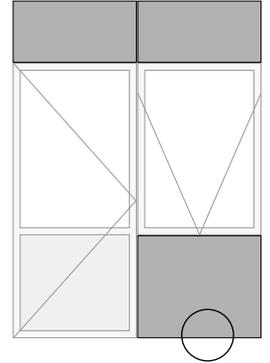
$U_{\text{panel}}$ -value (centre value in W/m <sup>2</sup> K)
Max. 0.67 for the construction

# VELFAC 200 RAINSCREEN PANELS

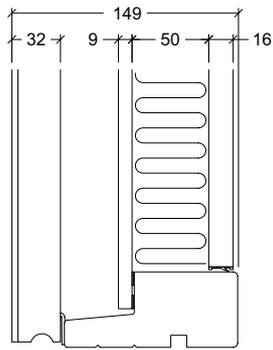
## DETAILS, MIN./MAX.-SIZES AND $U_{\text{PANEL}}$ -VALUES



VELFAC 200 Rainscreen panel



VELFAC 200 rainscreen mounted on frame from factory



VELFAC 200 ENERGY rainscreen mounted on frame from factory

HxW and WxH measured in mm	Max. for VELFAC 200 / 200 ENERGY	
	Aluminium plate in RAL-colour	Aluminium plate, anodised
Rainscreen panel, WxH	1250 x 2800	1250 x 2800
Rainscreen panel, HxW	1250 x 2800	

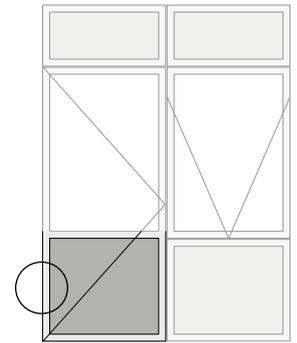
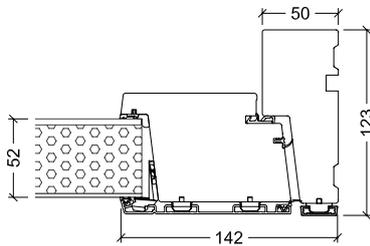
$U_{\text{panel}}$ -value (centre value in W/m <sup>2</sup> K)				
	VELFAC 200		VELFAC 200 ENERGY	
Element depth	124mm	149mm	149mm	174mm
Rainscreen with frame, insulation ( $\lambda=0.02$ ) and backboard	0.33	0.23	0.33	0.23

# VELFAC RIBO DOOR SANDWICH PANELS

## MATERIALS FOR VELFAC RIBO PANELS

Board information	Materials	Colours	Thickness of board	Weight
<b>Aluminium plate + Aluminium plate</b>	Powder coated or anodised aluminium. N.B. Medium resistance to kicks or ball dents, etc.	Same colour and finish range as VELFAC Ribo alu sashes.	Sandwich: 1.5+1.5mm 32mm panel 52mm panel	9.2 kg/m <sup>2</sup> 10.0 kg/m <sup>2</sup>
<b>Aluminium plate + HDF plate</b>	Powder coated or anodised aluminium externally and a HDF plate internally N.B. Medium resistance to kicks or ball dents, etc.	Same colour and finish range as VELFAC Ribo alu sashes (aluminium) / VELFAC Ribo wood frames (HDF).	Sandwich: 1.5+4mm 32mm panel 52mm panel	8.9 kg/m <sup>2</sup> 9.5 kg/m <sup>2</sup>

## DETAILS, MIN./MAX.-SIZES AND U<sub>PANEL</sub>-VALUES



VELFAC Ribo alu Sandwich panel

HxW and WxH measured in mm	Max. area	Max. for panel element
Aluminium plate + Aluminium plate	(1.5m <sup>2</sup> )	2500 × 1600
Aluminium plate + HDF plate	(1.5m <sup>2</sup> )	2500 × 1600

Min./max. sizes for the selected opening function may influence the size.

Sandwich panels	U <sub>panel</sub> -value (centre value in W/m <sup>2</sup> K)	
Glazing bead	32mm	52mm
Aluminium plate + Aluminium plate	0.73	0.45
Aluminium plate + HDF plate	1.02	0.64



# VELFAC GLAZING

THE VELFAC GLAZING CONCEPT



Top: Earl Mortimer College, Leominster, Herefordshire / Haverstock Associates

Bottom: Lofthaus, Berlin / Markus Coelen Gesellschaft von Architekten mbH

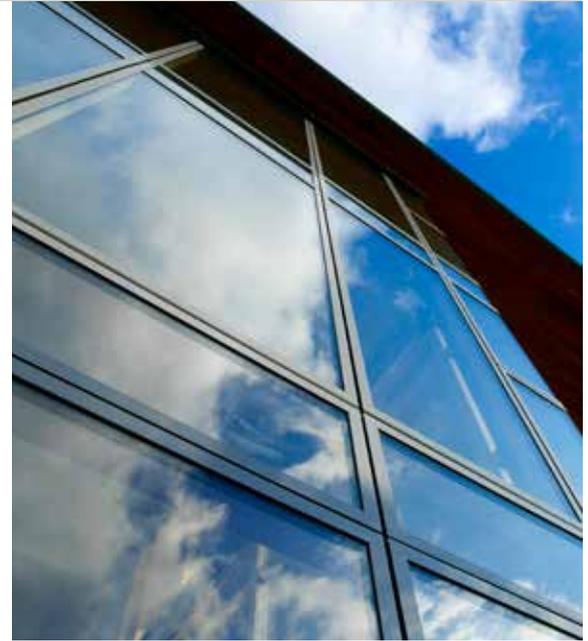
# VELFAC GLAZING

## VELFAC GLAZING FOR EVERY NEED

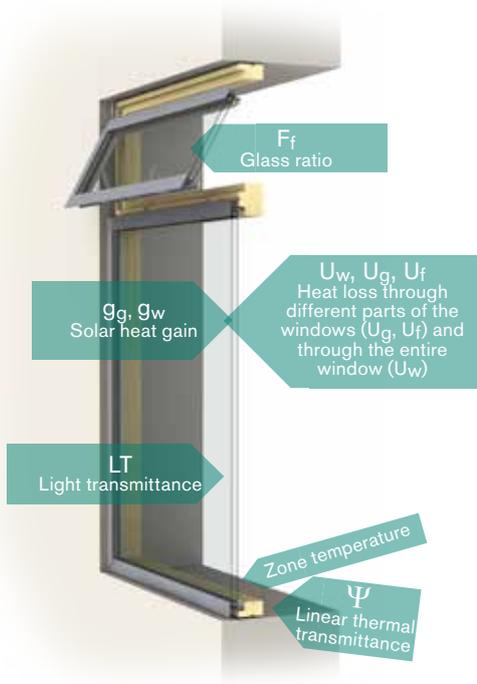
VELFAC windows are supplied with low-energy glazing as standard, but a wealth of additional options are also available. All windows within the VELFAC Glazing concept are compliant with EN 1279.

Our range is divided into two main categories based on two key glass properties: energy efficiency and solar protection. Glass in both categories can be combined with other types of glass to deliver additional benefits such as noise reduction, increased safety and security, or opacity, so that the perfect glazing solution can be created.

Get started with the primary needs and then add additional properties.



### WINDOW TERMINOLOGY



### CALCULATION OF GLASS WEIGHT

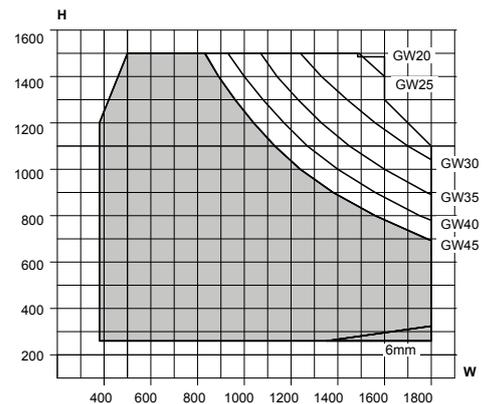
All window glass, including any laminating material, has a weight of 2.5 kg per square metre, per millimetre thickness. The weight of the spacer profile is unimportant and is therefore not measured.

Glazing	Calculation of glass weight (GW)		
4-16-4	= (4+4) x 2.5 kg	= 20 kg/m <sup>2</sup>	= GW 20
6-14-4	= (6+4) x 2.5 kg	= 25 kg/m <sup>2</sup>	= GW 25
6.4-14-4	= (6+4) x 2.5 kg	= 25 kg/m <sup>2</sup>	= GW 25
6-12-6	= (6+6) x 2.5 kg	= 30 kg/m <sup>2</sup>	= GW 30
4-18-4-18-4	= (4+4+4) x 2.5 kg	= 30 kg/m <sup>2</sup>	= GW 30
8-8-8.4	= (8+8) x 2.5 kg	= 40 kg/m <sup>2</sup>	= GW 40
8.8-16-6-14-8.8	= (8+6+8) x 2.5 kg	= 55 kg/m <sup>2</sup>	= GW 55

6.4, 8.4 and 8.8 panes are laminated panes.

The glass weight influences the maximum size of windows or doors. The GW lines are limiting the element height and width according to the glass weight.

Here you can see how the glass weight of 45 kg/m<sup>2</sup> limits the min./max. sizes (grey area).



# VELFAC STANDARD GLAZING

## VELFAC STANDARD GLAZING - CLEAR ENERGY GLAZING

VELFAC STANDARD GLAZING provides a light, pleasant interior and a clear view of the external environment.

VELFAC STANDARD GLAZING has excellent insulation properties achieved by incorporating a heat reflecting coating on the inner surface of the glass and argon gas within the glazing cavity. VELFAC STANDARD GLAZING features provide an improved internal environment by reducing draught, and can help to reduce heating costs.



### VELFAC 200 DGU

Construction	Type of glass	U-value BS/EN673	g-value BS/EN410	LT-value BS/EN410
4-16-4 argon*	Clear/Energy	1.12	0.64	0.82
4-16-4 argon	Energy/Energy North	1.03	0.45	0.70

The U-value for an entire window must be calculated separately. Please call VELFAC for more information.

\* Standard in all VELFAC 200 windows.

### VELFAC 200 ENERGY

Construction	Type of glass	U-value BS/EN673	g-value BS/EN410	LT-value BS/EN410
4-18-4-18-4 argon*	Energy / Clear / Energy	0.53	0.53	0.74
4-18-4-18-4 argon	Energy South/Clear/Energy South	0.62	0.62	0.73

The U-value for an entire window must be calculated separately. Please call VELFAC for more information.

\* Standard in all VELFAC 200 ENERGY windows.

# VELFAC SUN

## VELFAC SUN - SOLAR PROTECTION

VELFAC SUN is an effective way to reduce the temperature in rooms with larger window sections. The glazing reflects up to 2/3 of the sun's heat while unwanted sunlight is kept out, and plenty of natural light enters to the entire room.

Choose from the different types of solar control glazing, all consisting of glass with coating:

- VELFAC Sun SKN176 is a neutral colour coating, which is very close to the appearance of standard glass, and delivers a natural internal finish and a clear view of the external environment.
- VELFAC Sun SKN 154 and SKN 165 are a little darker in colour than Sun SKN176, and therefore offers greater protection against unwanted solar gain. Although the coating remains very transparent, the colours of the external view will be slightly affected.



### VELFAC 200 DGU

Construction	Type of glass	U-value BS/EN673	g-value BS/EN410	LT-value BS/EN410
4-16-4 argon	Sun SKN176/Clear	1.04	0.37	0.70
6-14-4 argon	Sun SKN154/Clear	1.07	0.28	0.52

The U-value for an entire window must be calculated separately. Please call VELFAC for more information.

### VELFAC 200 ENERGY

Construction	Type of glass	U-value BS/EN673	g-value BS/EN410	LT-value BS/EN410
4-18-4-18-4 argon	Sun SKN176/Clear/Energy	0.50	0.35	0.64
6-18-4-16-4 argon	Sun SKN165/Clear/Energy	0.52	0.32	0.55
6-18-4-16-4 argon	Sun SKN154/Clear/Energy	0.52	0.26	0.47

The U-value for an entire window must be calculated separately. Please call VELFAC for more information.

# VELFAC SOUND

## VELFAC SOUND - NOISE REDUCTION

Efficient glazing is fundamental to noise control. Glazing is effective at reducing external noise, but the use of thicker glass or different combinations of glass will improve performance.

A standard VELFAC 200 double-glazed unit achieves Rw32, which can be increased to Rw39 by adjusting the thickness of the glass and the glazing rebate. A standard VELFAC 200 ENERGY triple-glazed unit achieves Rw33, which can be increased to Rw43.

Please call VELFAC for solutions to your specific noise reduction requirements.

**Acoustic trickle vent.** The VELFAC acoustic vent is designed to provide both fresh air and noise control in buildings when combined with VELFAC SOUND windows. The vent achieves a sound reduction value of Dn, e, w 40dB.



### VELFAC 200 DGU

Construction	Type of glass	U-value BS/EN673	g-value BS/EN410	LT-value BS/EN410	Rw	Rw + C	Rw + Ctr
4-16-4*	Clear/Energy	1.12	0.64	0.82	32	-1	-5
6-14-4*	Clear/Energy	1.15	0.63	0.81	35	-1	-4
8.8-12-4	Sound Safety/Energy	1.27	0.60	0.81	38	-2	-5

The U-value for an entire window must be calculated separately. Please call VELFAC for more information.

\*Standard in all VELFAC 200 windows.

The table shows noise reduction (Rw) values for a VELFAC 200 system window measuring (W x H) = 1230mm x 1480mm.

### VELFAC 200 ENERGY

Construction	Type of glass	U-value BS/EN673	g-value BS/EN410	LT-value BS/EN410	Rw	Rw + C	Rw + Ctr
4-18-4-18-4*	Energy/Clear/Energy	0.53	0.53	0.74	33	-2	-6
4-18-4-16-6	Energy/Clear/Energy	0.55	0.53	0.74	37	-1	-5
6-12-4-18-8.8	Energy Safety/Clear/Sound Safety Energy	0.61	0.51	0.73	41	-2	-7
8.8-12-4-15-8.8	Sound Safety Energy/Clear/Sound Safety Energy	0.65	0.49	0.72	43	-1	-4
3+1 (4-18-4-18-4 + 6)	Energy/Clear/Energy + Clear Safety	0.48	0.49	0.67	45	-2	-7
3+1 (8.8-12-6-12-8.8 + 6)	Sound Safety Energy/Clear/Sound Safety Energy	0.62	0.45	0.65	50	-1	-6

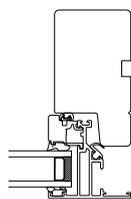
The U-value for an entire window must be calculated separately. Please call VELFAC for more information.

\*Standard in all VELFAC 200 ENERGY windows.

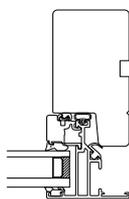
The table shows noise reduction (Rw) values for a VELFAC 200 ENERGY system window measuring (W x H) = 1230mm x 1480mm.

# VELFAC SOUND + VELFAC FIRE

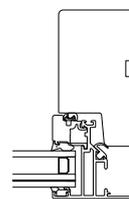
## VELFAC SOUND - NOISE REDUCTION



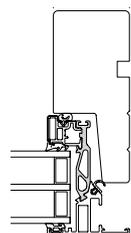
Glazing: 4-16-4  
 Rw = 32 dB  
 Rw + C = 31 dB  
 Rw + Ctr = 27 dB



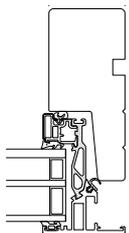
Glazing: 6-14-4  
 Rw = 35 dB  
 Rw + C = 34 dB  
 Rw + Ctr = 31 dB



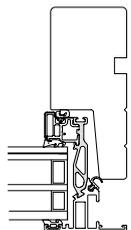
Glazing: 8.8-12-4  
 Rw = 38 dB  
 Rw + C = 36 dB  
 Rw + Ctr = 33 dB



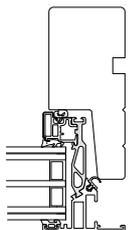
Glazing:  
 4-18-4-18-4  
 Rw = 33 dB  
 Rw + C = 31 dB  
 Rw + Ctr = 27 dB



Glazing:  
 4-18-4-16-6  
 Rw = 37 dB  
 Rw + C = 36 dB  
 Rw + Ctr = 32 dB



Glazing:  
 6-12-4-18-8.8  
 Rw = 41 dB  
 Rw + C = 39 dB  
 Rw + Ctr = 34 dB



Glazing:  
 8.8-12-4-15-8.8  
 Rw = 43 dB  
 Rw + C = 42 dB  
 Rw + Ctr = 39 dB

## VELFAC FIRE - FIRE PROTECTION

VELFAC FIRE glass should be used in areas which secure escape routes, or which protect persons or objects from fire.

A VELFAC FIRE window looks exactly the same as a VELFAC 200 System window.

VELFAC FIRE glass meets national and European standards. VELFAC FIRE glass has been integrity tested according to BS EN standards 1363-1/2, 1364-1 and 1634-1.

Approved document B of the Building Regulations gives guidance on fire resistant materials.



### VELFAC 200 DGU

Construction	Type of glass	U <sub>g</sub> BS/EN673	g-value BS/EN410	LT-value BS/EN410
6-14-4	VELFAC Fire / Energy	1.15	0.67	0.83

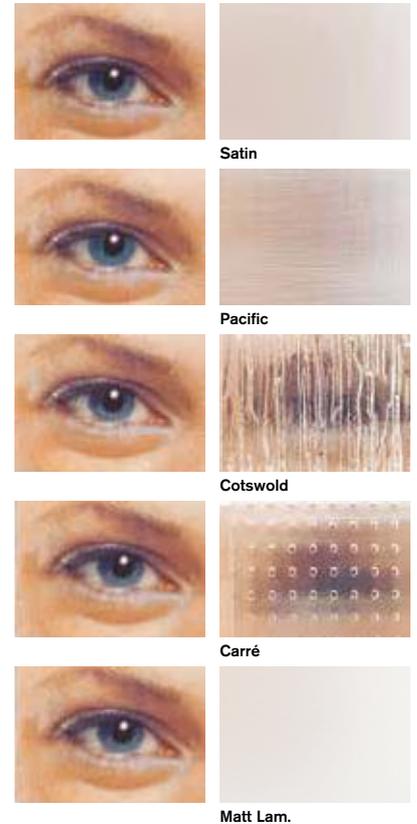
The U-value for an entire window must be calculated separately. Please call VELFAC for more information.

# VELFAC DÉCOR + VELFAC FAÇADE

## VELFAC DÉCOR - OBSCURE

VELFAC DÉCOR obscure glass should be used in areas where privacy and security are required. VELFAC DÉCOR is available in five different designs: Satin, Pacific, Cotswold, Carré or Matt Lam - glass laminated with a matt foil to give a sand-blasted appearance. Matt laminated glass also reduces the risk of injury should the glass break.

In order to get maximum effect of key glass property, VELFAC recommends that obscure glass is fitted as the external or middle layer, when used with VELFAC CLEAR, and as the internal or middle layer when used with VELFAC SUN. These configurations ensure that the performance of the glazed unit is not compromised.



## VELFAC FAÇADE - GLAZED PANELS

VELFAC FAÇADE glass has a non-transparent enamel coating and is used to create glazed panels for visually unbroken façades or façades with a special colour effect. They are especially suitable for concealing floor slabs and other internal structures, or areas behind the façade.

VELFAC FAÇADE enamel glass is available in several RAL colours and is supplied as toughened and heat-soak tested as standard.

The most popular uses of VELFAC FAÇADE are:

- Spandrel panels fitted with 6mm enamel glass
- Look-alike panels - panels with double-glazed units which are usually fitted with solar protection glass on the outside and enamel glass on the inside. This allows closer colour matching to other windows in a façade.



## VELFAC 200 DGU and VELFAC 200 ENERGY

Construction	Type of glass	U-value BS/EN673
6mm enamel glazing	RAL 7011, 7016, 7024, 7026, 7031, 7035, 9005, 9010, 9016, 9018	0.40
6-12-6 shadow-box	RAL 7011, 7016, 7024, 7026, 7031, 7035, 9005, 9010, 9016, 9018	0.51

# VELFAC SAFETY

## VELFAC SAFETY - PERSONAL SAFETY

VELFAC SAFETY glass should be used in areas where glazing is at risk from human impact (safe breakage) or where glazing is required to form a physical barrier between levels (containment).

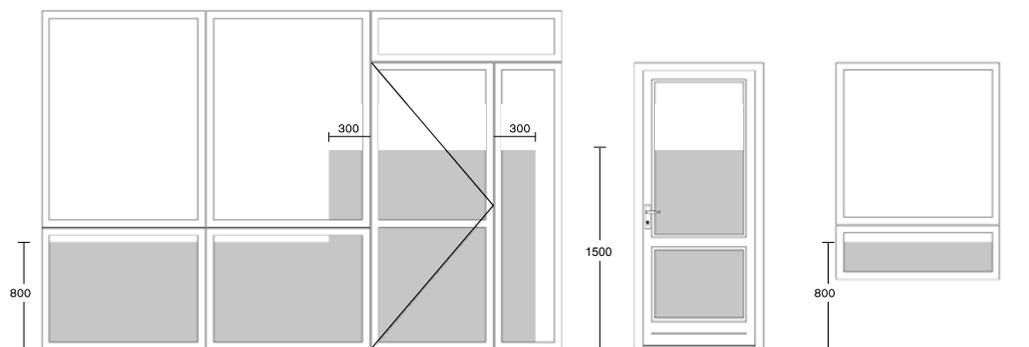
It is typically used in casement doors, sliding casement doors, entrance doors and low positioned windows.

VELFAC SAFETY glass meets a number of National and European standards.

Approved document N of the Building Regulations and BS 6262: Part 4 identify the critical areas and requirements for safety glass. Approved document K of the Building Regulations identifies the requirements for containment. BS 6206 identifies the impact test procedure and classification for safety glass.



### Guidelines for the use of safety glass



The illustration shows indicative examples of risk areas through glass panels.

### VELFAC 200 DGU

Construction	Type of glass	U-value BS/EN673	g-value BS/EN410	LT-value BS/EN410
4-16-4 argon	Clear Safety/Energy Safety	1.12	0.64	0.82
4-14-6.4 argon	Clear Safety/Energy Safety	1.15	0.64	0.80
6-10-8.4 argon	Clear Safety/Energy Safety	1.43	0.63	0.80

The U-value for an entire window must be calculated separately. Please call VELFAC for more information.

### VELFAC 200 ENERGY

Construction	Type of glass	U-value BS/EN673	g-value BS/EN410	LT-value BS/EN410
4-18-4-18-4 argon	Energy Safety/Clear/Energy Safety	0.53	0.53	0.74
4-18-4-18-4 argon	Energy/Clear/Energy Safety	0.53	0.53	0.74
4-18-4-16-6.4 argon	Energy Safety/Clear/Energy Safety	0.55	0.53	0.74
6-14-6-14-8.4 argon	Energy Safety/Clear/Energy Safety	0.61	0.53	0.72

The U-value for an entire window must be calculated separately. Please call VELFAC for more information.



# VELFAC COUPLINGS

COUPLING AND CORNER SOLUTIONS

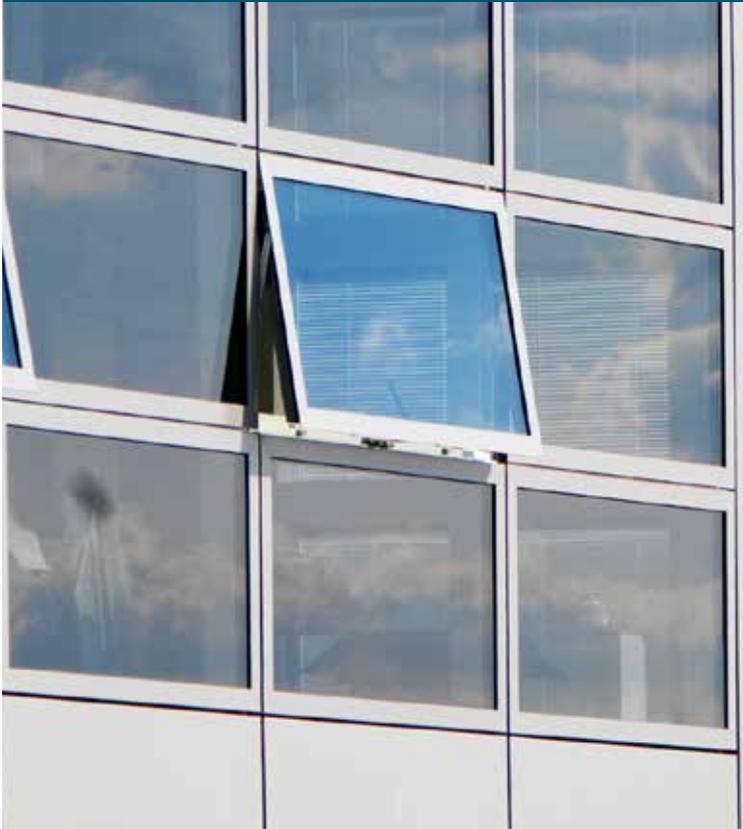


Top: Crome Court UEA, Norwich / LSI Architects

Bottom: Forest Way School, Coalville / Hunters South Architects

# VELFAC COUPLINGS AND CORNERS

COUPLINGS WITHIN THE VELFAC 200 WINDOW SYSTEM



THE VELFAC 200 WINDOW SYSTEM COUPLED WITH THE VELFAC 500 ALUMINIUM DOOR SYSTEM



A VELFAC 200 CORNER SOLUTION SEEN FROM OUTSIDE



A VELFAC 200 CORNER SOLUTION SEEN FROM INSIDE

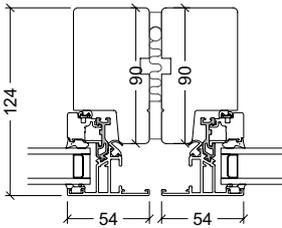


# VELFAC 200 COUPLING DETAILS

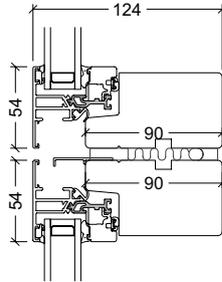
## VELFAC 200 WITH VELFAC 200 OR VELFAC DOORS

For further information, please refer to our Installation Guide.

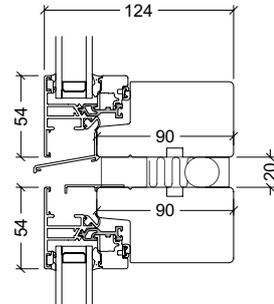
Please note that all horizontal couplings between VELFAC 200 and VELFAC Ribo must be fitted with a cover profile.



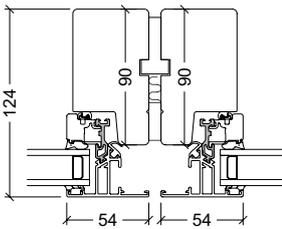
VELFAC 200 - VELFAC 200  
Horizontal coupling



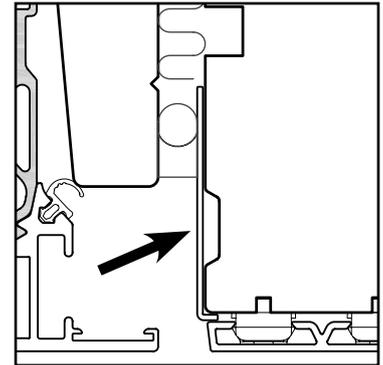
VELFAC 200 - VELFAC 200  
Vertical coupling



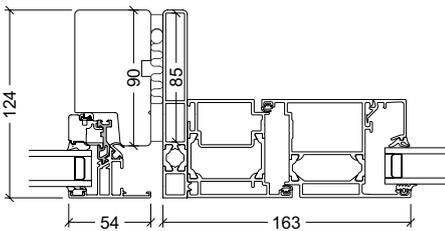
VELFAC 200 - VELFAC 200  
Vertical coupling with drip  
flashing. Drip flashing is required  
for every 3 m min.



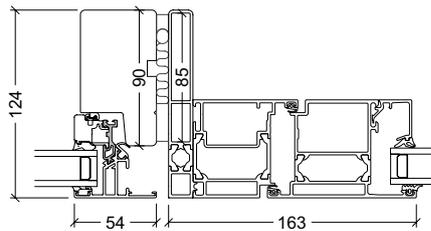
VELFAC 200 - VELFAC 200  
Horizontal coupling with coupling profile



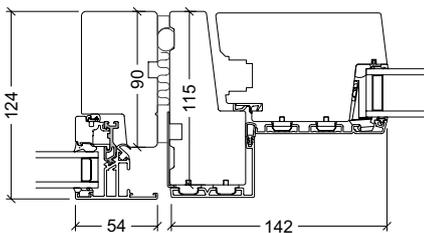
**Cover profile.** All horizontal couplings between VELFAC 200 and VELFAC Ribo or VELFAC In must be fitted with a cover profile.



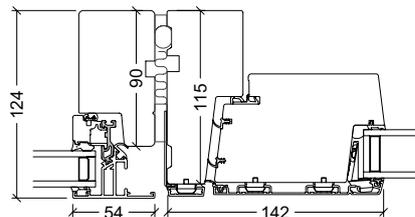
VELFAC 200 - VELFAC 500  
Inward opening door



VELFAC 200 - VELFAC 500  
Outward opening door



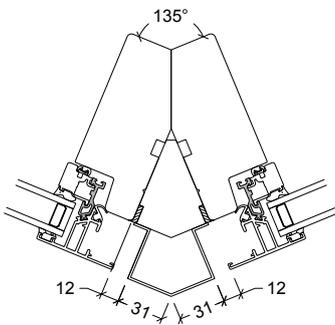
VELFAC 200 - VELFAC Ribo  
Inward opening door  
Must be fitted with a cover profile.



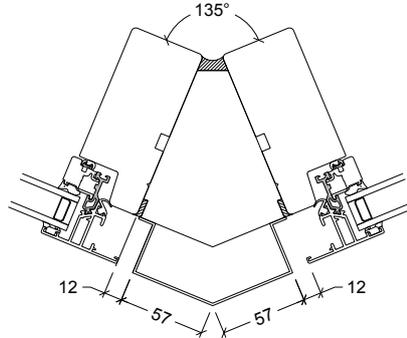
VELFAC 200 - VELFAC Ribo  
Outward opening door  
Must be fitted with a cover profile.

# VELFAC 200 CORNER SOLUTIONS

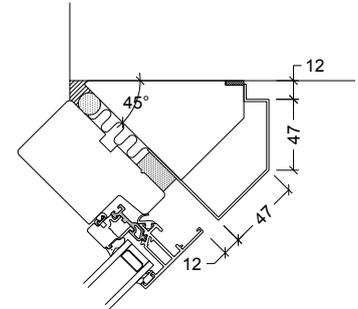
## VELFAC 200 - EXTERNAL CORNER SOLUTIONS



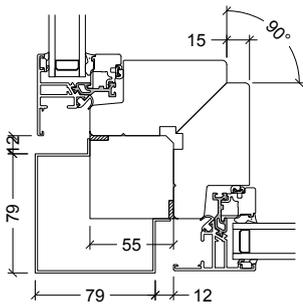
45° corner post, type A2202  
45° aluminium pressing, type A1202



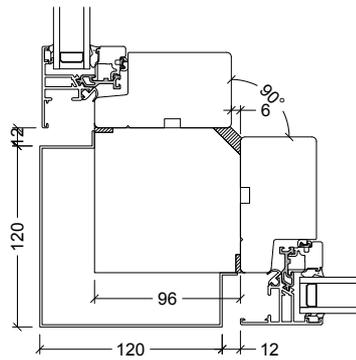
45° corner post, type A2201  
45° aluminium pressing, type A1201



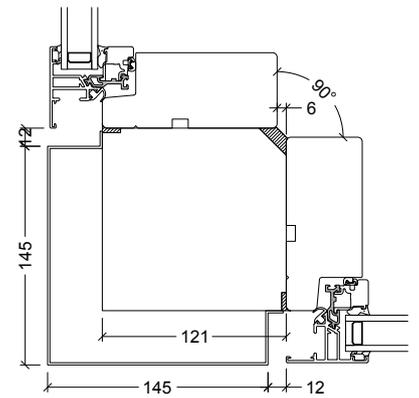
45° corner post, type A2214  
45° aluminium pressing, type A1205



90° corner post, type A2001  
90° aluminium pressing, type A1001

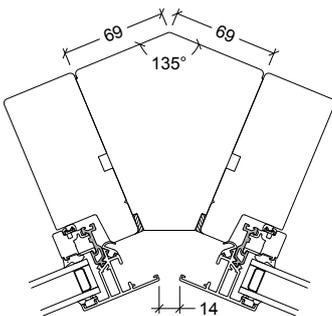


90° corner post, type A2000  
90° aluminium pressing, type A1000

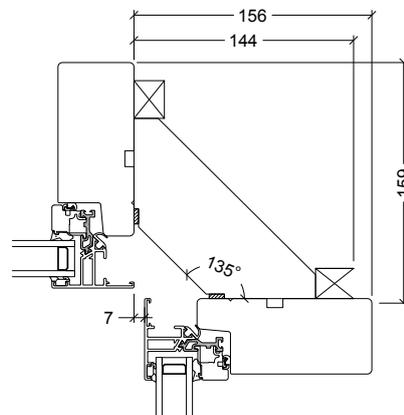


90° corner post, type A2016  
90° aluminium pressing, type A1004

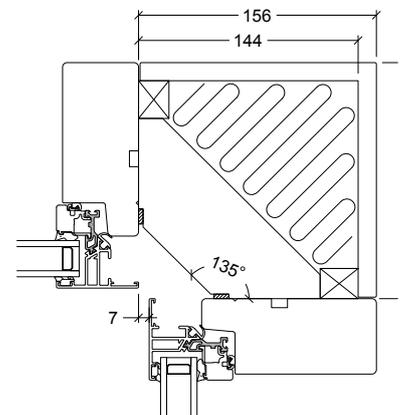
## VELFAC 200 - INTERNAL CORNER SOLUTIONS



45° corner post, type A2211



90° corner post without backboard,  
type A2008



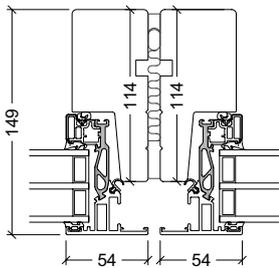
90° corner post with backboard,  
type A2014

# VELFAC 200 ENERGY COUPLING DETAILS

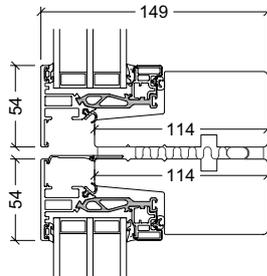
## VELFAC 200 ENERGY WITH VELFAC 200 ENERGY OR VELFAC DOORS

For further information, please refer to our Installation Guide.

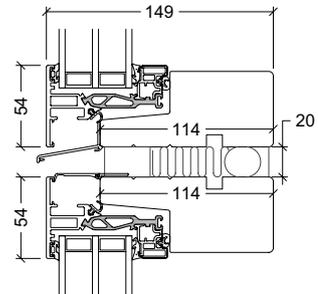
Please note that all horizontal couplings between VELFAC 200 and VELFAC Ribo must be fitted with a cover profile.



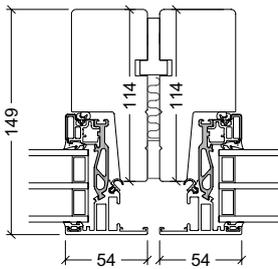
VELFAC 200 ENERGY - VELFAC 200 ENERGY  
Horizontal coupling with compriband



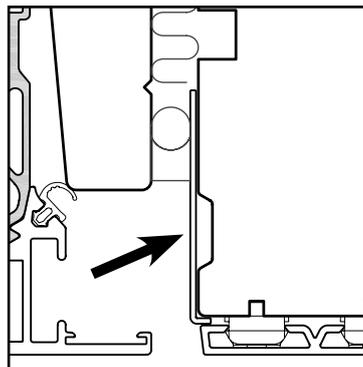
VELFAC 200 ENERGY - VELFAC 200 ENERGY  
Vertical coupling



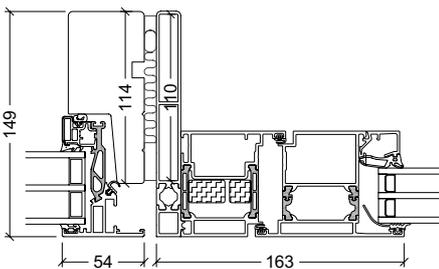
VELFAC 200 ENERGY - VELFAC 200 ENERGY  
Vertical coupling with drip flashing. Drip flashing is required for every 3 m min.



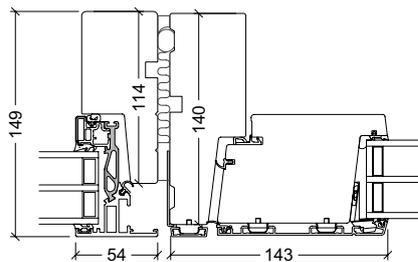
VELFAC 200 ENERGY - VELFAC 200 ENERGY  
Horizontal coupling with coupling profile



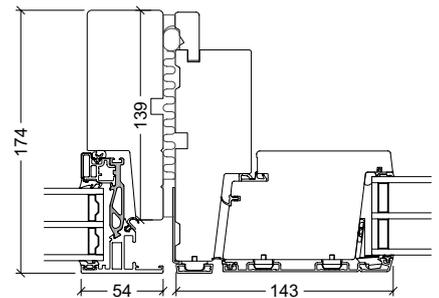
**Cover profile.** All horizontal couplings between VELFAC 200 and VELFAC Ribo or VELFAC In must be fitted with a cover profile.



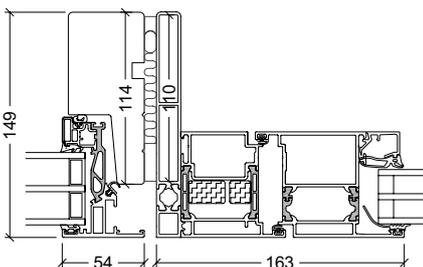
VELFAC 200 ENERGY - VELFAC 500  
Outward opening door



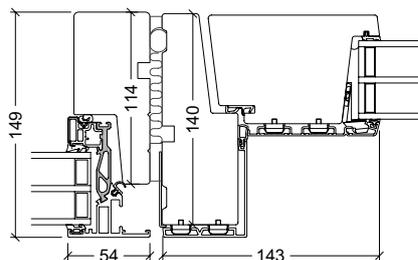
VELFAC 200 ENERGY - VELFAC Ribo  
Outward opening door  
Must be fitted with a cover profile.



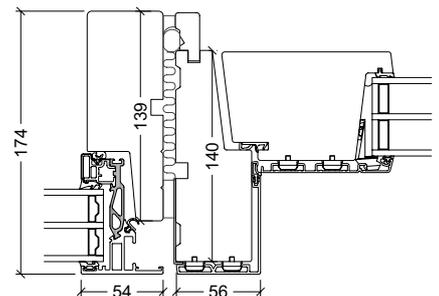
VELFAC 200 ENERGY - VELFAC Ribo  
Outward opening door  
Must be fitted with a cover profile.



VELFAC 200 ENERGY - VELFAC 500  
Inward opening door



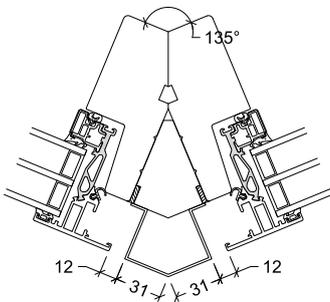
VELFAC 200 ENERGY - VELFAC Ribo  
Inward opening door  
Must be fitted with a cover profile.



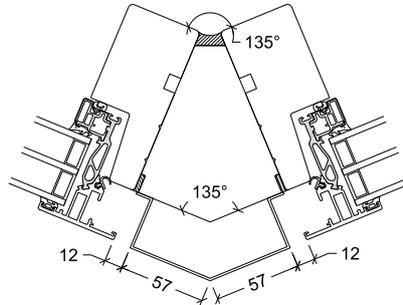
VELFAC 200 ENERGY - VELFAC Ribo  
Inward opening door  
Must be fitted with a cover profile.

# VELFAC 200 ENERGY CORNER SOLUTIONS

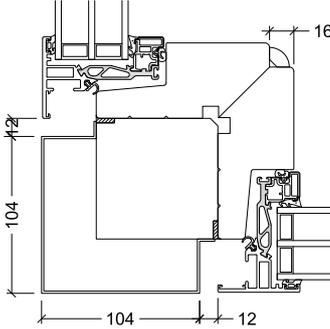
## VELFAC 200 ENERGY - EXTERNAL CORNER SOLUTIONS



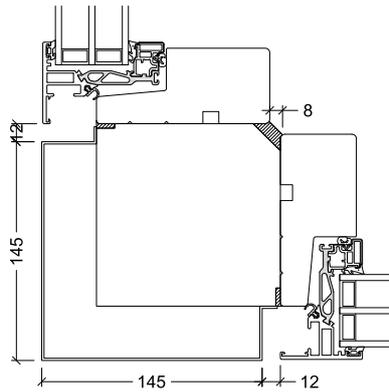
45° corner post, type A2202  
45° aluminium pressing, type A1202



45° corner post, type A2201  
45° aluminium pressing, type A1201

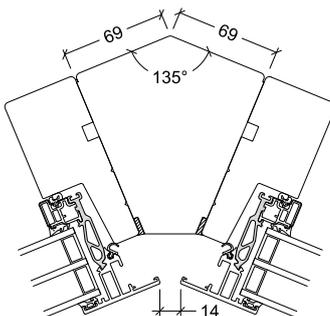


90° corner post, type A2002  
90° aluminium pressing, type A1002

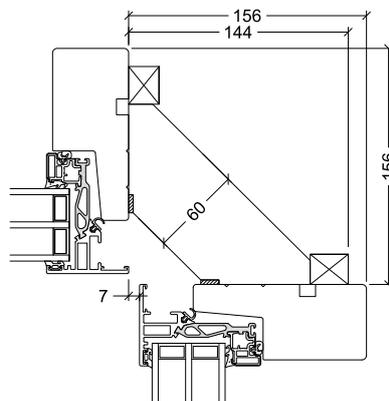


90° corner post, type A2016  
90° aluminium pressing, type A1004

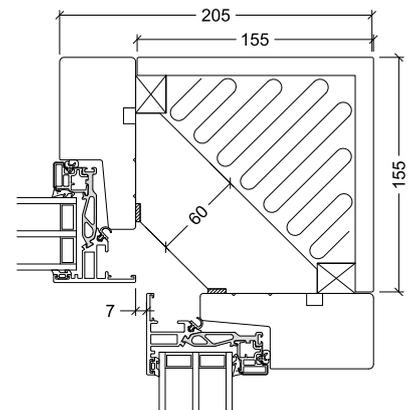
## VELFAC 200 ENERGY - INTERNAL CORNER SOLUTIONS



45° corner post, type A2211



90° corner post without backboard, type A2008



90° corner post with backboard, type A2014



# TEST INFORMATION

VELFAC TEST RESULTS IN AN OVERVIEW



Top: The 6.6m wide x 8.8m high CWCT test rig in front of the wind generator

Bottom: Displacement transducer measuring the deflection of the mainframes

# TEST INFORMATION – GENERAL TEST

## OPERATING FORCES AND AWW TEST

**General test.** The Swedish State Test Institute has performed a comprehensive range of tests on the VELFAC 200 window, in order to analyse overall performance and indicate how well the window can cope with everyday use.

The tests performed for VELFAC 200 and VELFAC 200 ENERGY are:

- Air permeability
- Water tightness
- Wind resistance
- The strength and the stability of the construction

The weathering tests detailed are equivalent to BS6375-1.

### VELFAC 200 - DGU

Property	Test / Classification standard	Result and classification
Vertical load	EN 14608 / BS EN 13115	Class 2
Static torsion	EN 14609 / BS EN 13115	Class 2
Operating forces	EN 12046-1 / BS EN 13115	Class 1
	BS EN 1191 / prEN 12400	Repeated open/close 10000 cycles - Class 2
Air permeability	BS EN 1026 / BS EN 12207	+/-600 Pa - Class 4
Water tightness	BS EN 1027 / BS EN 12208	600 Pa - Class 9A
Wind resistance	BS EN 12211 / BS EN 12210	1600 Pa - Class 4C

Test Institute: Teknologisk Institut, Aarhus, Denmark.

N.B. There may be limitations regarding function, type and size.

### VELFAC 200 ENERGY - TGU

Property	Test / Classification standard	Result and classification
Vertical load	BS EN 14608 / BS EN 13115	Class 3
Static torsion	BS EN 14609 / BS EN 13115	Class 3
Operating forces	BS EN 12046-1 / BS EN 13115	Class 1
	BS EN 1191 / BS EN 12400	Repeated open/close 20000 cycles - Class 3
Air permeability	BS EN 1026 / BS EN 12207	+/-600 Pa - Class 4
Water tightness	BS EN 1027 / BS EN 12208	1500 Pa - Class E1500
Wind resistance	BS EN 12211 / BS EN 12210	1600 Pa - Class 4C

Test Institute: BM Trada

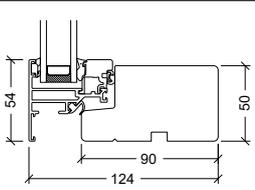
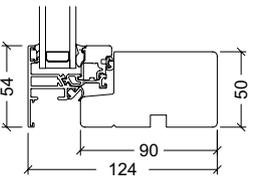
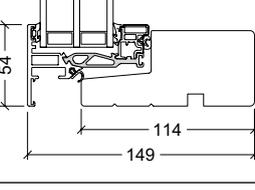
N.B. There may be limitations regarding function, type and size.

# THERMAL PROPERTIES TEST + FIRE WINDOWS TEST

## THERMAL PROPERTIES TEST

**Thermal properties.** The insulation capacity of a window is calculated using EN ISO 10077-2 and FEM Therm 5.2. Both are computer generated analyses which simulate a variety of test conditions and predict window performance within a range of thermal parameters.

The VELFAC 200 System achieves the results in the table below:

	1-leaf VELFAC 200 window - W x H: 1230 x 1480mm	U <sub>w</sub> -value EN673
	double-glazed window - 4-16-4 with 1 low-e and argon*	1.55
	double-glazed window - 4-16-4 with 2 low-e and argon	1.47
	double-glazed window - 4-16-4 with 1 low-e and argon*	1.41
	double-glazed window - 4-16-4 with 2 low-e and argon	1.34
	triple-glazed window - 4-18-4-18-4 with 2 low-e and argon*	0.82
	triple-glazed window - 4-18-4-18-4 with 2 low-e and argon	0.79

\* VELFAC standard glazing

## FIRE WINDOWS TEST

**Fire windows** must be able to contain a fire so that exits or escape routes remain accessible for as long as possible. The fire test examines the window's resistance to fire. The test is stopped once the fire has breached the window for more than ten seconds.

VELFAC fire windows are flame retardant on the internal side for either 30 minutes or 60 minutes depending on the sash function (Integrity E). The ventilated panel has been tested for integrity and insulation (EI).

VELFAC fire windows are made to look exactly the same as the 200 System, ensuring that the sightlines remain identical.

Please note, that fire windows and doors are only available as double glazed windows.

Property	Test / Classification standard	Result and classification
Fire resistance	BS EN 1363-1, BS EN 1363-2, BS EN 1364-1 and BS EN 1634-1 Boverket's General Advice 1993:2, edition 2. Guidelines for fire technical approvals.	Casement door - E30 Windows - E60 Ventilated fire panel - EI60

Test Institute: SP, Boraas

N.B. There may be limitations regarding function, type and size.

# SOUND REDUCTION TEST + SAFETY FITTINGS TEST

## SOUND REDUCTION TEST

**Sound reduction.** This test measures a window's capacity to reduce the levels of unwanted noise e.g. from heavy traffic. The noise level within most rooms of a family house should not exceed 30dB. If for example loud traffic noise amounts to 65-70dB, the building envelope must be able to reduce the noise level by 35-40dB.

VELFAC offers a variety of noise reduction solutions. Glazed units can be fitted with different types and thicknesses of glass. Please find examples of our glazing assortment for acoustic window solutions and of VELFAC 200 sound reducing windows on page 67.

Property	Test / Classification standard	Result and classification
Sound measurement	BS EN ISO 140-3 / BS EN ISO 717-1	VELFAC 200 DGU: $R_w = 32 - 38\text{dB}$ VELFAC 200 ENERGY TGU: $R_w = 33 - 43\text{dB}$

Test Institute: DELTA, Aarhus and BM Trada, Buckinghamshire  
N.B. There may be limitations regarding function, type and size.

## SAFETY FITTINGS TEST

**CE-marking** requires testing of the load bearing capacity of safety devices. All VELFAC window and door systems are CE-marked.

**Child safety.** The espagnolette with child-lock has been tested, and has passed the Scandinavian child safety test, which consists of two parts:

- In Stage 1, a group of at least 30 children are asked, individually, to attempt to open a window locked with a child-lock. They are given five minutes to complete the task. If a child fails, he/she is then shown how the lock is operated and asked to try again. 43 children took part in the VELFAC test, and less than the maximum percentage, 15%, of the children were able to open the VELFAC window.
- Stage 2 tests durability under stress: the lock and safety mechanism is required to maintain performance despite receiving repeated blows from a hammer.

Property	Test / Classification standard	Result and classification
VELFAC 200 DGU, Safety devices, CE marking <sup>(1)</sup>	EN 14351-1 (equivalent to BS6375-2)	Load 350N, 1 minute - Passed
VELFAC 200 ENERGY TGU, Safety devices, CE marking <sup>(2)</sup>	BS 6375-3	Passed
Espagnolette with child-lock <sup>(3)</sup>	NT CONS 018, SS 3587	As described above - Passed

Test Institute: <sup>(1)</sup>Teknologisk Institut, Aarhus, Denmark <sup>(2)</sup>BM Trada and <sup>(3)</sup>SP, Boraas, Sweden  
N.B. There may be limitations regarding function, type and size.

# CWCT ACCREDITATION TEST + NHBC COMPLIANCE

## CWCT ACCREDITATION TEST

**VELFAC 200 Plus** has been designed to perform exceptionally in large areas of window walling, tall buildings - up to 20 storeys, and in the most exposed locations - coastal sites, or high above sea level. Stunning façades can be created where opening and fixed lights have identical sightlines, and where the window wall maintains the visual appearance of all the other glazing in the project, providing a coherent aesthetic for the whole development.

**VELFAC 200 Plus meets the challenge.** Based on the established VELFAC 200 System, VELFAC 200 Plus composite aluminium and wood windows feature new enhancements and installation details which take performance to the next level - these include:

- Additional sealing for frame corners, mullion and transom joints
- Additional sash retainers for opening lights, and sash fixings for fixed units
- Secondary weather seals
- Additional weather screen gaskets

These enhancements also contribute to the system's excellent U-values - far better than usually achieved by a conventional aluminium curtain wall system.



**A real achievement.** VELFAC and CWCT worked together to develop a test rig and testing sequence to ensure the system would perform. The test procedure was undertaken by Taylor Woodrow and overseen by CWCT and having worked so closely with CWCT, VELFAC 200 Plus achieved CWCT system certification on successful completion. This provides official CWCT accreditation of VELFAC 200 Plus, a greater achievement than simply gaining a successful test report from a testing house, thus ensuring specifiers have an increased level of confidence in the performance of VELFAC 200 Plus within their own projects.

Property	Test / Classification standard	Result and classification
Air permeability	BS EN 12152 / BS EN 12207	+600 Pa - Class A4
Water tightness	BS EN 12154 / BS EN 12154 Dynamic water test to ENV 13050 Hose test (AAMA 501.2)	Static water tightness: 600Pa - Class R7 Dynamic water tightness - Passed Hose test - Passed
Wind resistance	BS EN 12179 / BS EN 13116	Serviceability to $\pm 2000$ Pa - Passed Safety to $\pm 3000$ Pa - Passed
Impact	BS 8200	Passed

Test Institute: Chiltern Dynamics, Buckinghamshire

## NHBC COMPLIANCE

VELFAC is one of the very few (if not the only) manufacturers with CWCT test results that can satisfy Chapter 6.9 of the NHBC Standards. This is particularly relevant to any area of glazing which passes over floor slabs which has to demonstrate CWCT-specific levels of weatherability performance.

VELFAC and CWCT have worked closely together over many years to develop testing rigs and testing sequences designed to push the VELFAC product range to its limits, thereby generating impressive performance data which meets NHBC Chapter 6.9 Standards, a rare achievement for a window manufacturer.

This means that the VELFAC system can withstand even those climatic conditions defined by NHBC as 'very severe' in terms of air, wind and water resistance.

# SECURITY TEST

## SECURED BY DESIGN TEST

**Secured by Design** certification includes testing of burglary resistance and general performance of the window.

The testing of capabilities concerning burglary is aimed at replicating how a thief would work and includes:

- A 'burglar's tool kit' is used by a professional expert to try and force entry. One set of tools can be used for 3 minutes. The overall time limit is 15 minutes.
- An attempt is made to remove the glass pane externally - as VELFAC 200 windows are internally glazed, with an integral glazing bead, external removal is impossible.
- A mechanical loading test is made using parallel and perpendicular loads to gain entry. The test should simulate attempted forced entry by using crowbars. Before the mechanical loading is performed an identical window is attempted forced open with 2 crowbars to see if further weak points should be tested.

The following types are third party SBD certified to PAS 24 **for windows:**

- |                        |                               |
|------------------------|-------------------------------|
| <b>VELFAC 200 DGU:</b> | <b>VELFAC 200 ENERGY TGU:</b> |
| ▪ sidehung window      | ▪ sidehung window             |
| ▪ fixed casement       | ▪ fixed casement              |
| ▪ top-guided window    | ▪ top-guided window           |
| ▪ casement window door | ▪ casement window door        |

The following types are third party SBD certified to PAS 24 **for doors:**

- VELFAC 200 ENERGY**
- VELFAC 200 ENERGY Security Casement Door
- VELFAC 500:**
- Aluminium Glazed Security Door
- VELFAC Ribo alu doors:**
- Wood/aluminium Glazed Entrance Door
  - Wood/aluminium Flush Entrance Door
  - Wood/aluminium Glazed Patio Door



**Official Police Security Initiative**

All our relevant products are registered on the Secured by Design website:  
[www.securedbydesign.com](http://www.securedbydesign.com)

Property	Test / Classification standard	Result and classification
Secured by Design	PAS 24, Annex C (window systems)	VELFAC 200 DGU - Passed VELFAC 200 ENERGY TGU - Passed
Secured by Design	PAS 24, Annex B (door systems)	VELFAC 200 ENERGY Security Casement Door - Passed VELFAC 500 Security Door - Passed VELFAC Ribo Alu Doors - Passed

Test Institutes: Chiltern Dynamics, BM Trada, EXOVA  
 N.B. There may be limitations regarding function, type and size.

## PART Q COMPLIANCE



VELFAC has a broad assortment of Part Q compliant windows and doors. Please refer to [VELFAC.co.uk](http://VELFAC.co.uk) for the entire list.

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