

WINDOWS FOR LIFE

The VELFAC catalogue

High quality design meets the energy demands of the future

2014 onwards

VELFAC[®]

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Energy efficiency

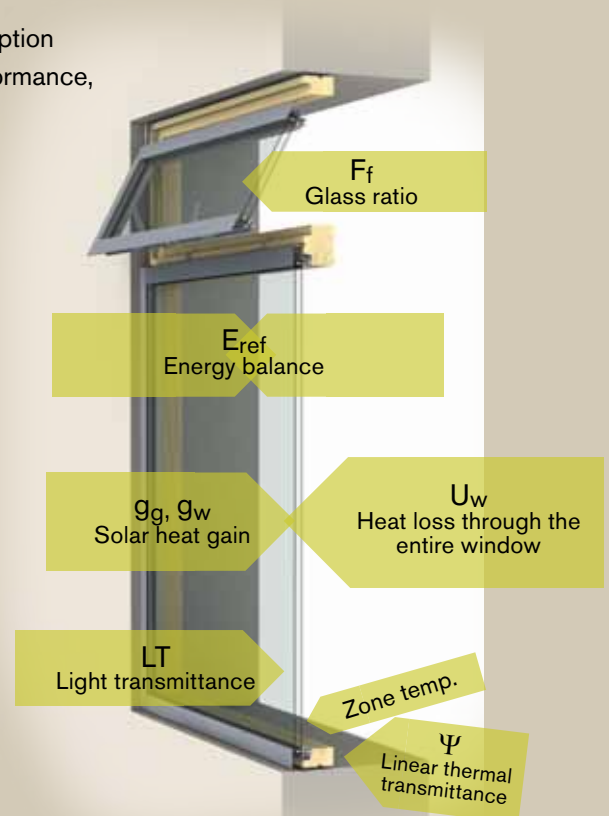
Over the last 15 years windows have been at the forefront of increasing energy efficiency for buildings. VELFAC windows have championed this cause whilst staying true to their core aesthetic principles of slim, identical sightlines, which maximise natural light. Improvements have been made to our system and we are able to achieve U-values as low as 0.80W/m²k without compromising our design.

What is good energy? - When it comes to windows and energy there is a lot more to consider than just U-values. A window is not like a brick wall, where the focus is simply on the ability of that wall to keep the cold out and the warmth in. Instead, the latest energy-optimised windows can actually contribute more energy to the heating of a building through free solar heat than is lost through the window to the outside.

Windows play a crucial role in reducing a building's heating consumption to the lowest level possible. Besides the window's basic energy performance, the primary factors to consider in low energy buildings are:

- The windows' orientation in relation to the sun
- Sun screening and shading
- The glass ratio
- Installation methods and thermal bridges
- The number of windows and total window area
- Air tightness

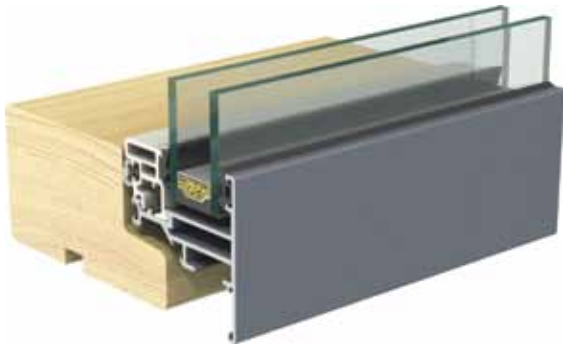
This diagram explains the window energy terminology:



Documentation. In addition to the improvements in performance, VELFAC windows can also provide a high level of detailed documentation calculated using EN ISO 10077-2 and FEM Therm 5.2. This includes the following information:

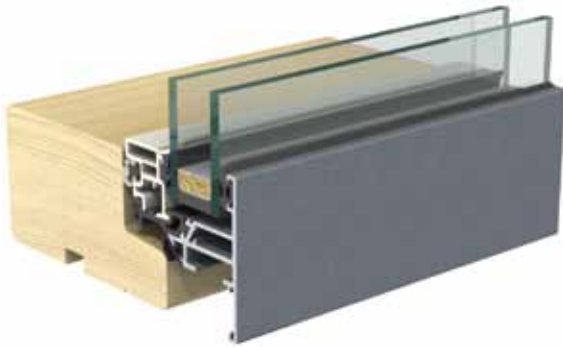
- Total area of each window type
- Glazing/frame ratio
- Light transmittance (Lt) values
- Solar gain (g) values
- U-values for each individual window type
- Overall area weighted U-value for the project

If you would like to discuss the energy performance of windows for your project, please call our technical team on 01223 897100.



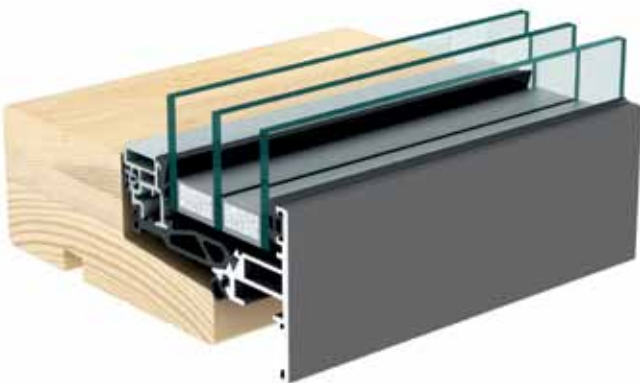
VELFAC 200, 24mm glazing

- ▶ Material: aluminium / wood
- ▶ U_w -value in 1985: 2.92
- ▶ U_w -value in 2011: 1.55
- ▶ Market introduction in Denmark: 1985
- ▶ Market introduction in Great Britain: 1989
- ▶ The optimal choice for most buildings



VELFAC 200i, 24mm glazing

- ▶ Material: aluminium with thermal break / wood
- ▶ U_w -value: 1.40
- ▶ Market introduction in Denmark: 2009
- ▶ Market introduction in Great Britain: 2010
- ▶ For buildings with low-energy targets



VELFAC 200 ENERGY, 48mm glazing

- ▶ Material: aluminium with thermal break / wood
- ▶ U_w -value: 0,8
- ▶ Market introduction in Denmark: 2013
- ▶ Market introduction in Great Britain: 2014
- ▶ Limited amounts available in 2014
- ▶ For buildings with low-energy targets

A window system under constant evolution

Design and industry expertise. VELFAC windows embody both leading edge design and years of industry expertise. As a window supplier we can proudly present more than 25 years of knowledge with composite windows.

Our core product, the VELFAC 200 window system, has undergone constant product development and evolution in order to satisfy clients' demands as well as the increasing legal demands.

The VELFAC 200 ENERGY system is proven expertise. The new triple layer glazing solution combines unique insulation properties with strength and durability. And the new VELFAC 200 ENERGY profiles will maintain the clean, crisp sightlines that we are renowned for.

Being the third generation of VELFAC 200, the functionality within the new VELFAC 200 ENERGY windows are based on the same proven design as the original VELFAC 200 system launched in 1985. We know it works, we have optimized the design for 25 years, and this knowledge and experience has been used in our new enhanced system.

Windows for all purposes. Whatever your requirements are, we have got the solution. Whether your focus is SBD, energy efficiency, sound reduction or price optimisation, we have the right windows and we will make sure you get the best possible solution for the lowest possible costs.

Tried and tested. Millions of VELFAC 200 windows are installed across Europe and thousands of people test them every day. Despite our highly successful track record, we maintain a demanding testing programme to ensure our windows continue to satisfy all necessary regulatory standards.

This inherent durability also results in a window which is built to last - VELFAC aluminium / wood windows have been assessed by leading construction industry consultants and a 40-60 year design life is expected.

Warranty. Our confidence is so high in our VELFAC 200 system, that we offer a market leading comprehensive 12 year warranty.

If you wish to know more about the VELFAC 200 ENERGY window system or you have a sustainable energy project please email contact and project details to maillist@velfac.co.uk.

Calculation conditions:

U_w -values are calculated for the European reference window, which is a 1-leaf window, width×height = 1230mm×1480mm, standard glazing.



Quality through design

Utmost quality. VELFAC windows are designed to give you flexibility to create the design to suit your building, and to provide the best functionality for a lifetime. With regular maintenance, we expect our windows to last 40 years or more.

Wood. Frames, mullions and transoms are made of VACUMAT or Flow-coat-treated pine with water-based acrylic paint containing anti-mould fungicide. Thickness of final paint layer, when dry, is 60-80µm. Wood is 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.

Aluminium. External sashes are made of aluminium extrusion alloy EN AW-6060 or EN AW-6063, Polyester powder coated to a thickness of 60-120µm and a standard gloss level of 77%, or anodised to a thickness of 20µm. The finish of the external aluminium sash is either a hard-wearing Polyester-powder coat in a wide range of RAL colours, metallic finish in RAL 9006 & 9007, or anodised silver or gold.

Glazing beads are grey (RAL 7035), white (RAL 9010), or black (RAL 9005).

Configurations. Any VELFAC frame can be divided by mullions or transoms to create the aesthetic and function you require. Sashes with different opening functions can be mounted within the same frame. Each frame can be manufactured to 3.7m in height or width, or max. 230kg. If one side of the frame is greater than 2.4m, the other must be less than 2.4m.

Shapes. VELFAC windows can also be created in many different shapes. As a result, you can specify a window that suits the building style and architecture, or create a feature by combining different shapes and sizes. Most shaped windows are fixed although some can be made opening.

Warranty. VELFAC offers a market leading comprehensive warranty of 12 years on windows including glazed units.



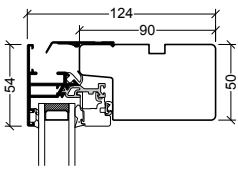
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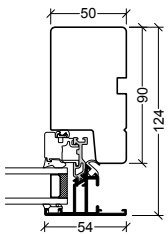
VELFAC 201 - Sidehung opening light



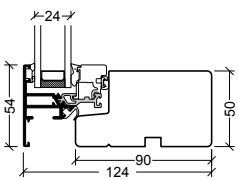
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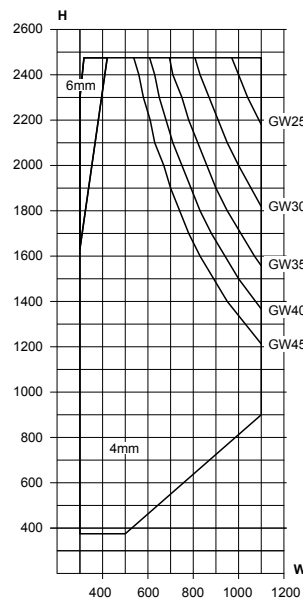
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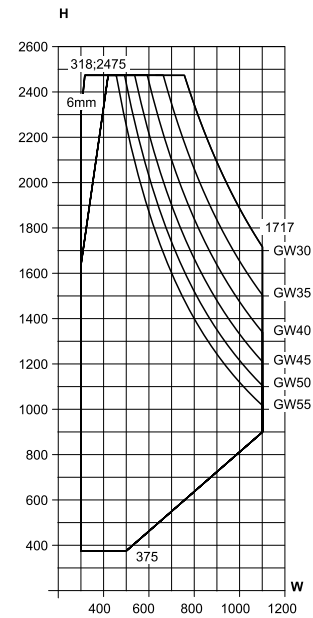


Min./max. sizes, 24mm glazing



GW. = glass weight
N.B. Max. height/width ratio is 1:7.

Min./max. sizes, 48mm glazing



GW. = glass weight
N.B. Max. height/width ratio is 1:7.

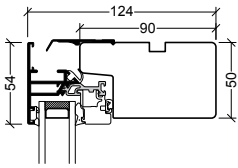
Scale: 1:5

- GW. 20 = Glass weight 20 kg/m² (e.g. 4-16-4)
- GW. 25 = Glass weight 25 kg/m² (e.g. 6-14-4)
- GW. 30 = Glass weight 30 kg/m² (e.g. 6-12-6 and 8-12-4)
- GW. 35 = Glass weight 35 kg/m² (e.g. 4/0.38/4-10-6)
- GW. 40 = Glass weight 40 kg/m² (e.g. 8-8-4/0.38/4)
- GW. 45 = Glass weight 45 kg/m² (e.g. 4/0.76/4-16-10)
- GW. 50 = Glass weight 50 kg/m² (e.g. 4/0.76/4-16-6-16-6)
- GW. 55 = Glass weight 55 kg/m² (e.g. 4/0.38/4-16-6-14-4/0.38/4)

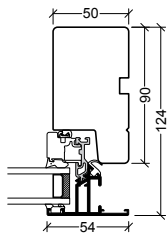
VELFAC 207 - Sidehung projecting light



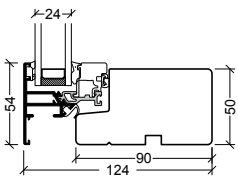
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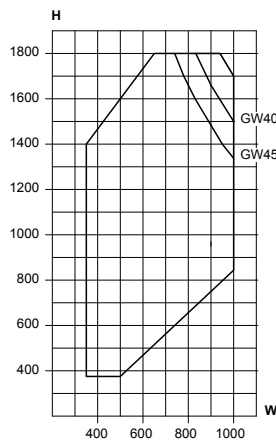
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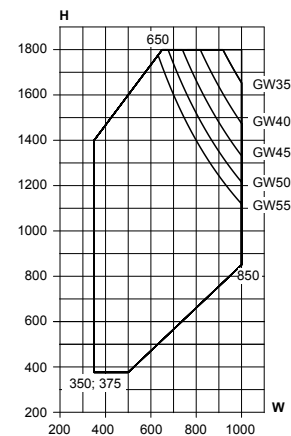


Min./max. sizes, 24mm glazing



GW. = glass weight

Min./max. sizes, 48mm glazing



GW. = glass weight

Scale: 1:5

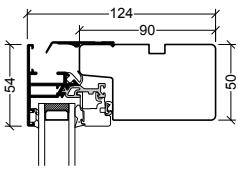
- GW. 20 = Glass weight 20 kg/m² (e.g. 4-16-4)
- GW. 25 = Glass weight 25 kg/m² (e.g. 6-14-4)
- GW. 30 = Glass weight 30 kg/m² (e.g. 6-12-6 and 8-12-4)
- GW. 35 = Glass weight 35 kg/m² (e.g. 4/0.38/4-10-6)
- GW. 40 = Glass weight 40 kg/m² (e.g. 8-8-4/0.38/4)
- GW. 45 = Glass weight 45 kg/m² (e.g. 4/0.76/4-16-10)
- GW. 50 = Glass weight 50 kg/m² (e.g. 4/0.76/4-16-6-16-6)
- GW. 55 = Glass weight 55 kg/m² (e.g. 4/0.38/4-16-6-14-4/0.38/4)

VELFAC 210 - Fixed light

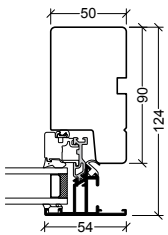


Min./max. sizes, 24mm glazing

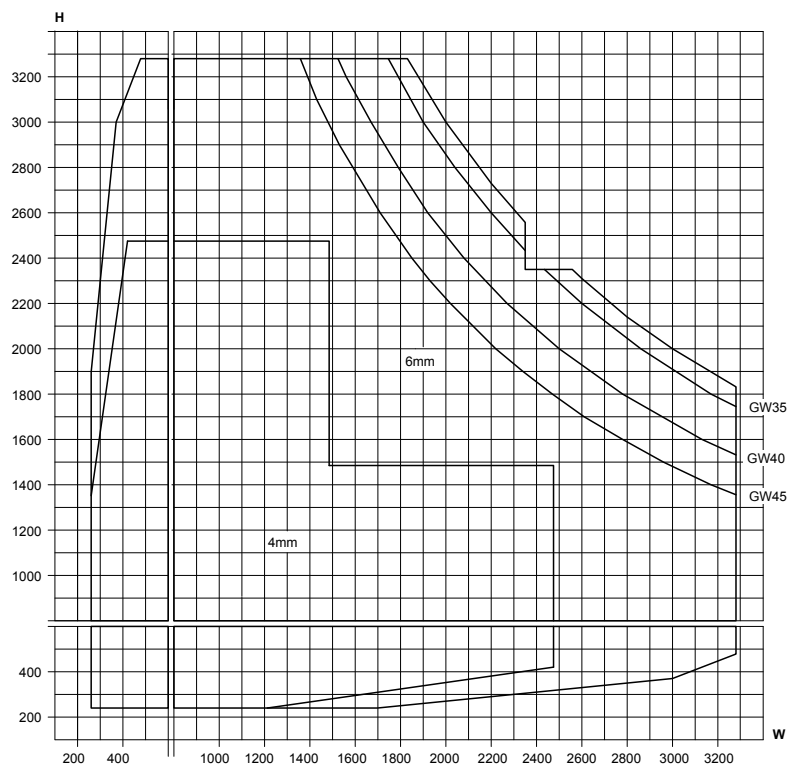
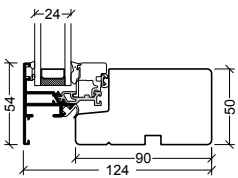
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Cill



GW. = glass weight

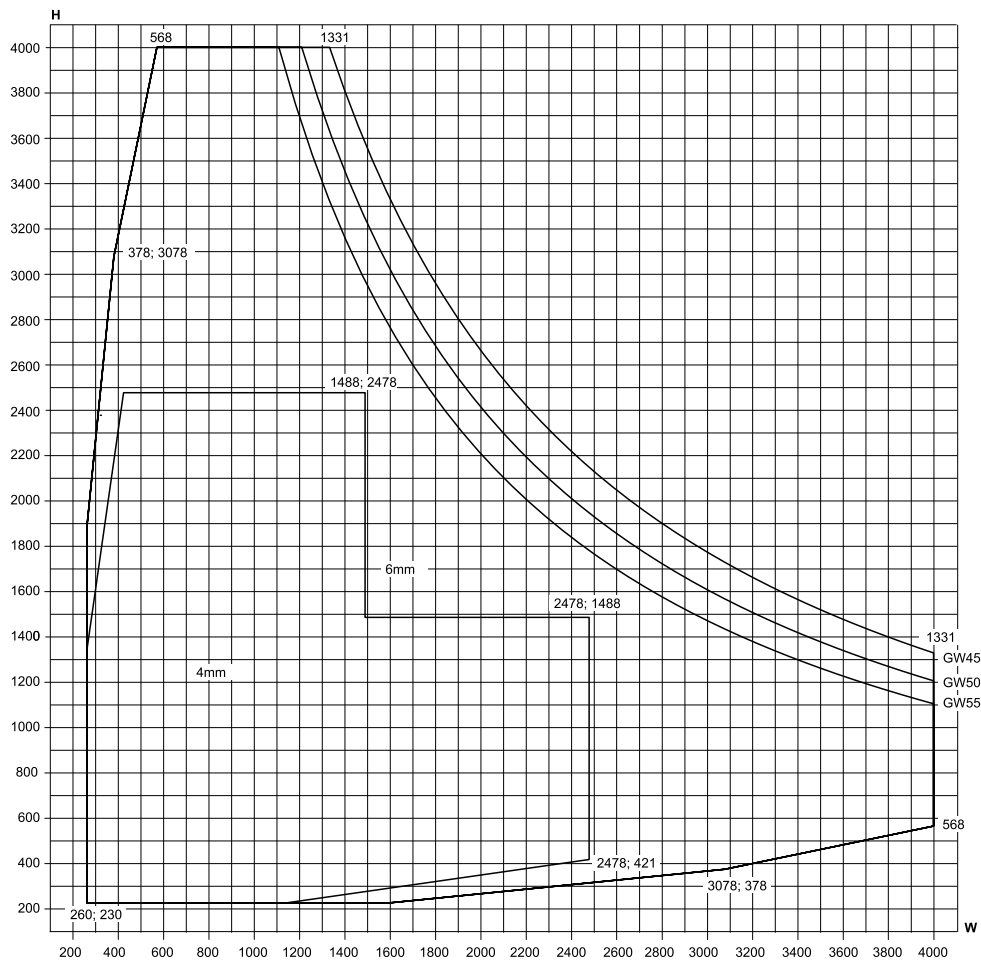
N.B. Max. height/width ratio is 1:7.

GW. 20 = Glass weight 20 kg/m² (e.g. 4-16-4)

GW. 25 = Glass weight 25 kg/m² (e.g. 6-14-4)

GW. 30 = Glass weight 30 kg/m² (e.g. 6-12-6 and 8-12-4)

Min./max. sizes, 48mm glazing



GW. = glass weight

N.B. Max. height/width ratio is 1:7.

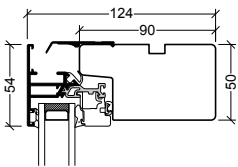
GW. 35 = Glass weight 35 kg/m² (e.g. 4/0.38/4-10-6)
 GW. 40 = Glass weight 40 kg/m² (e.g. 8-8-4/0.38/4)
 GW. 45 = Glass weight 45 kg/m² (e.g. 4/0.76/4-16-10)

GW. 50 = Glass weight 50 kg/m² (e.g. 4/0.76/4-16-6-16-6)
 GW. 55 = Glass weight 55 kg/m² (e.g. 4/0.38/4-16-6-14-4/0.38/4)

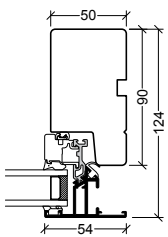
VELFAC 212 - Tophung projecting light



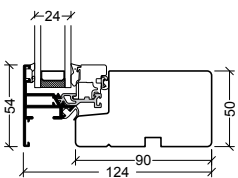
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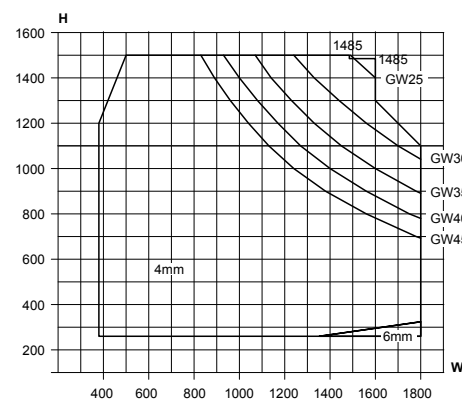
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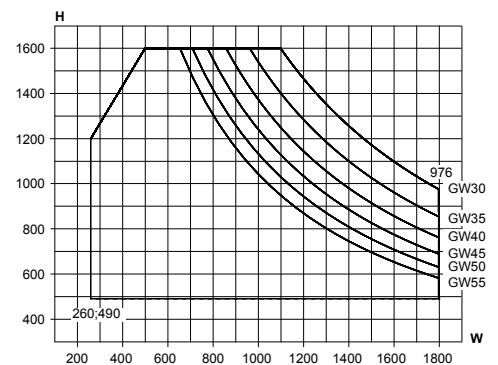


Min./max. sizes, 24mm glazing



GW. = glass weight

Min./max. sizes, 48mm glazing

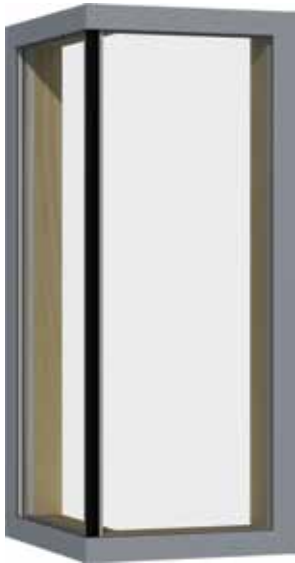


GW. = glass weight

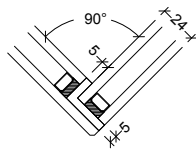
Scale: 1:5

- GW. 20 = Glass weight 20 kg/m² (e.g. 4-16-4)
- GW. 25 = Glass weight 25 kg/m² (e.g. 6-14-4)
- GW. 30 = Glass weight 30 kg/m² (e.g. 6-12-6 and 8-12-4)
- GW. 35 = Glass weight 35 kg/m² (e.g. 4/0.38/4-10-6)
- GW. 40 = Glass weight 40 kg/m² (e.g. 8-8-4/0.38/4)
- GW. 45 = Glass weight 45 kg/m² (e.g. 4/0.76/4-16-10)
- GW. 50 = Glass weight 50 kg/m² (e.g. 4/0.76/4-16-6-16-6)
- GW. 55 = Glass weight 55 kg/m² (e.g. 4/0.38/4-16-6-14-4/0.38/4)

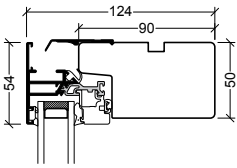
VELFAC 220 - Glass to glass corner



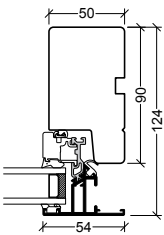
Glass detail at corner



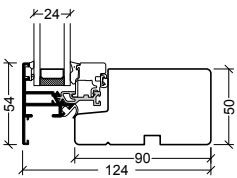
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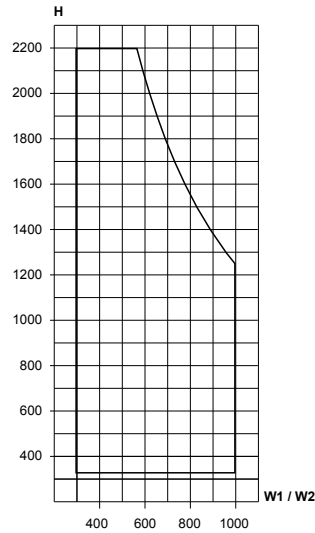
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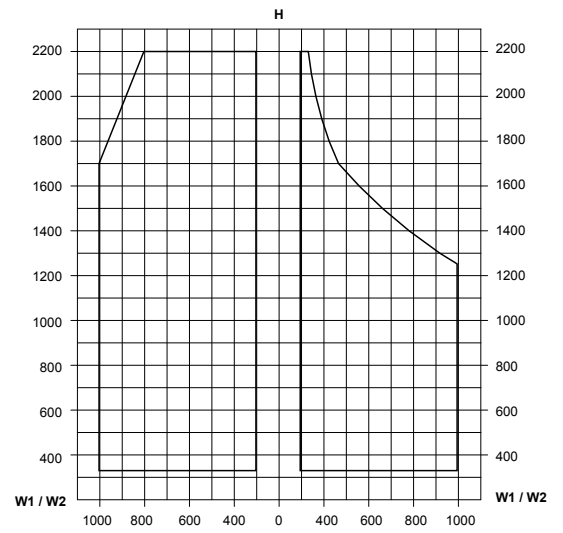
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Min./max. sizes
Symmetric



Min./max. sizes
Asymmetric



Scale: 1:5

Max. total area = 2.5 m²

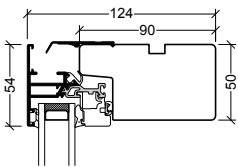
GW. 30 = Glass weight 30 kg/m² (e.g. 6-12-6, 6-16-4-16-6)

Cannot be supplied with mullions, transoms or glazing bars.

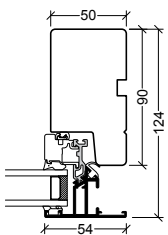
VELFAC 229 - Reversible opening light



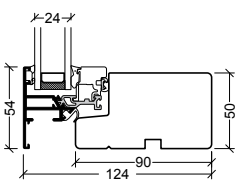
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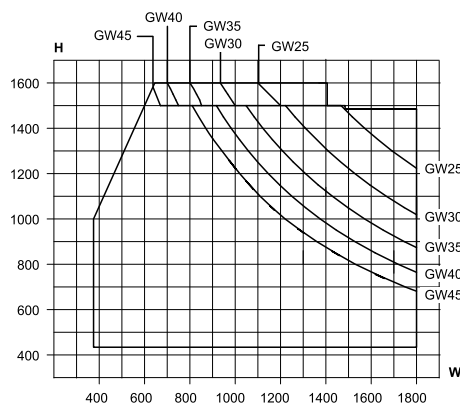
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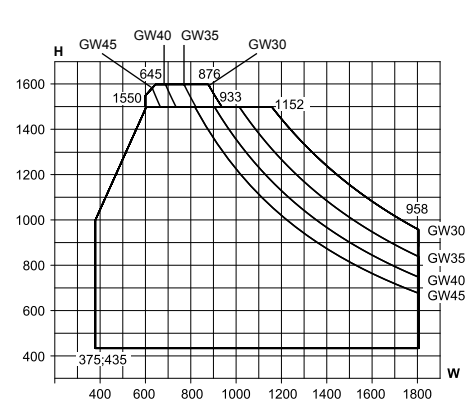


Min./max. sizes, 24mm glazing



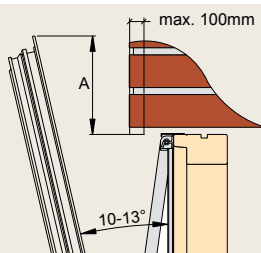
GW. = glass weight

Min./max. sizes, 48mm glazing



GW. = glass weight

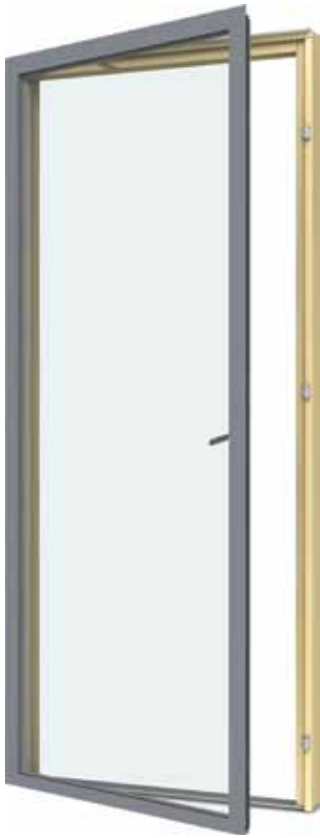
Scale: 1:5



N.B. Maximum setback from the façade - 100mm.

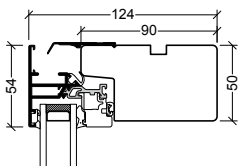
- GW. 20 = Glass weight 20 kg/m² (e.g. 4-16-4)
- GW. 25 = Glass weight 25 kg/m² (e.g. 6-14-4)
- GW. 30 = Glass weight 30 kg/m² (e.g. 6-12-6 and 8-12-4)
- GW. 35 = Glass weight 35 kg/m² (e.g. 4/0.38/4-10-6)
- GW. 40 = Glass weight 40 kg/m² (e.g. 8-8-4/0.38/4)
- GW. 45 = Glass weight 45 kg/m² (e.g. 4/0.76/4-16-10)
- GW. 50 = Glass weight 50 kg/m² (e.g. 4/0.76/4-16-6-16-6)
- GW. 55 = Glass weight 55 kg/m² (e.g. 4/0.38/4-16-6-14-4/0.38/4)

VELFAC 231 - Patio door, 1-leaf

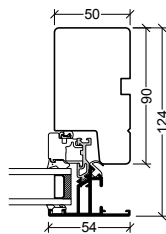


Fitted with internal handle only.

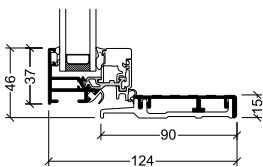
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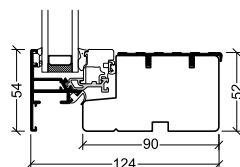
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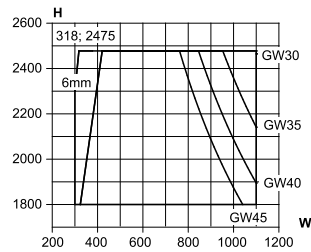
Threshold, 15mm



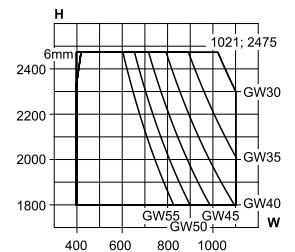
Threshold, 52mm



Min./max. sizes,
24mm glazing



Min./max. sizes
48mm glazing

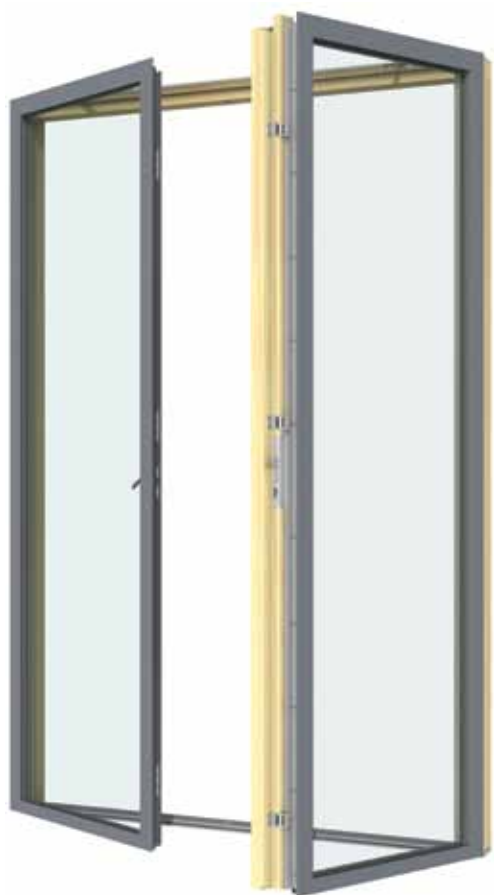


GW. = glass weight

Scale: 1:5

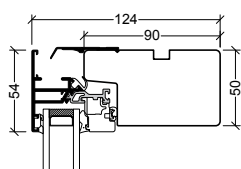
- GW. 20 = Glass weight 20 kg/m² (e.g. 4-16-4)
- GW. 25 = Glass weight 25 kg/m² (e.g. 6-14-4)
- GW. 30 = Glass weight 30 kg/m² (e.g. 6-12-6 and 8-12-4)
- GW. 35 = Glass weight 35 kg/m² (e.g. 4/0.38/4-10-6)
- GW. 40 = Glass weight 40 kg/m² (e.g. 8-8-4/0.38/4)
- GW. 45 = Glass weight 45 kg/m² (e.g. 4/0.76/4-16-10)
- GW. 50 = Glass weight 50 kg/m² (e.g. 4/0.76/4-16-6-16-6)
- GW. 55 = Glass weight 55 kg/m² (e.g. 4/0.38/4-16-6-14-4/0.38/4)

VELFAC 231-2 - French Casement door

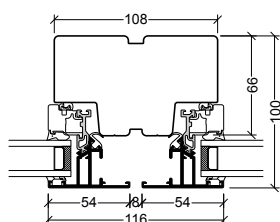


Fitted with internal handle only.

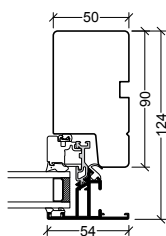
Head



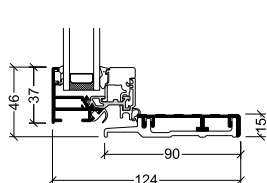
Mullion



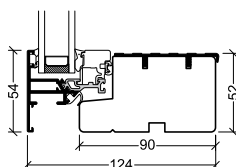
Jamb



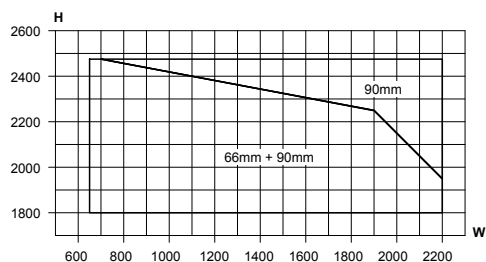
Threshold, 15mm



Threshold, 52mm



Min./max. sizes
with French Casement

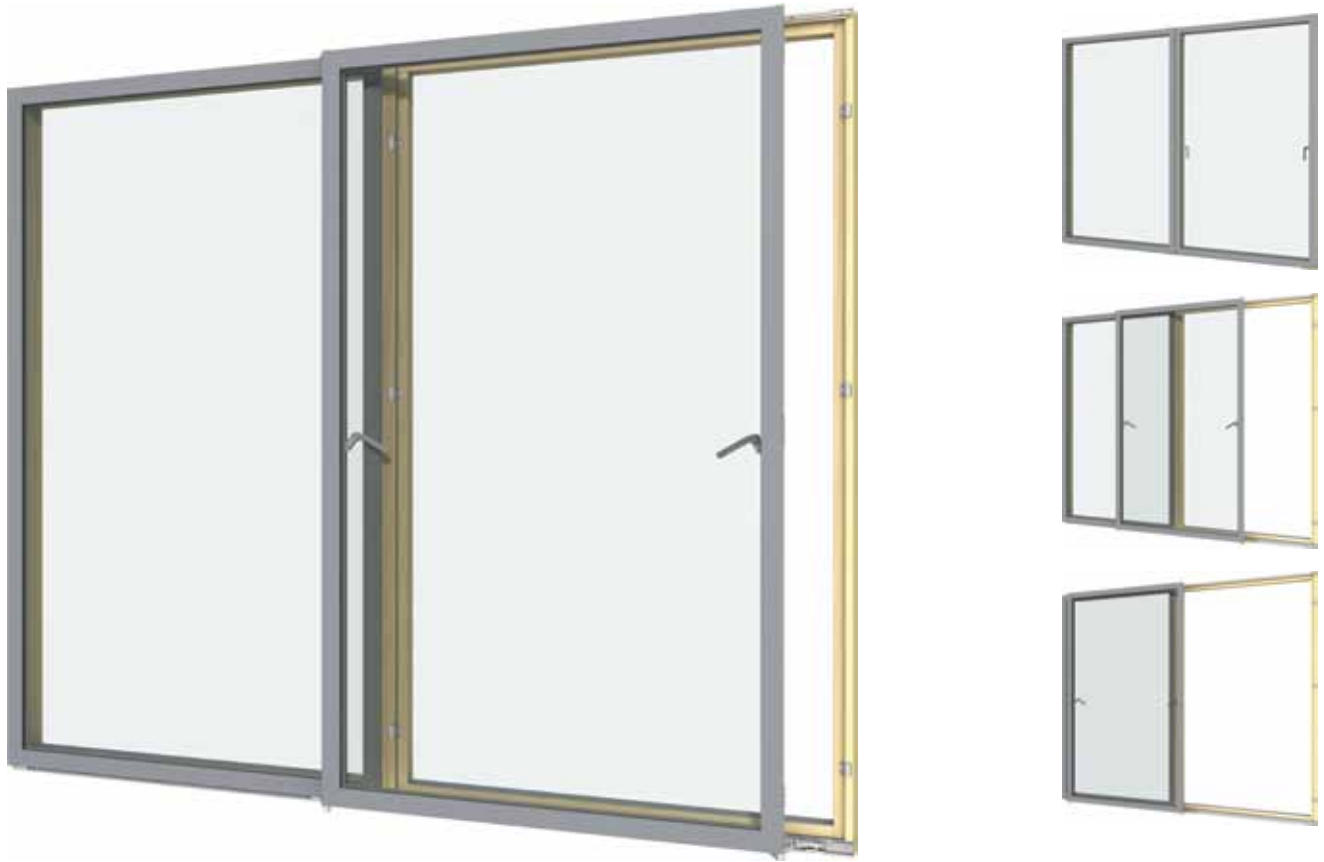


N.B. 180° hinge: Sash width max. 1000mm, with additional glass weight limitations.

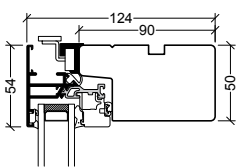
Scale: 1:5

- GW. 20 = Glass weight 20 kg/m² (e.g. 4-16-4)
- GW. 25 = Glass weight 25 kg/m² (e.g. 6-14-4)
- GW. 30 = Glass weight 30 kg/m² (e.g. 6-12-6 and 8-12-4)
- GW. 35 = Glass weight 35 kg/m² (e.g. 4/0.38/4-10-6)
- GW. 40 = Glass weight 40 kg/m² (e.g. 8-8-4/0.38/4)
- GW. 45 = Glass weight 45 kg/m² (e.g. 4/0.76/4-16-10)
- GW. 50 = Glass weight 50 kg/m² (e.g. 4/0.76/4-16-6-16-6)
- GW. 55 = Glass weight 55 kg/m² (e.g. 4/0.38/4-16-6-14-4/0.38/4)

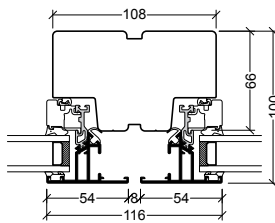
VELFAC 237 - Sliding window door, 1-leaf



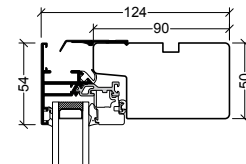
Head, sliding door



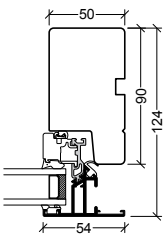
Mullion



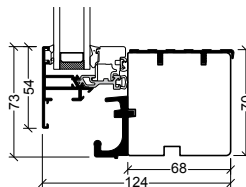
Head, side light



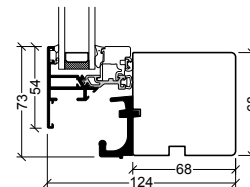
Jamb



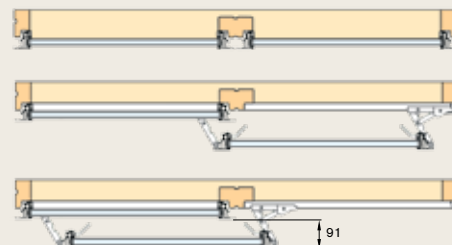
Threshold with tread plate



Threshold without tread plate (fixed sash and side light only)



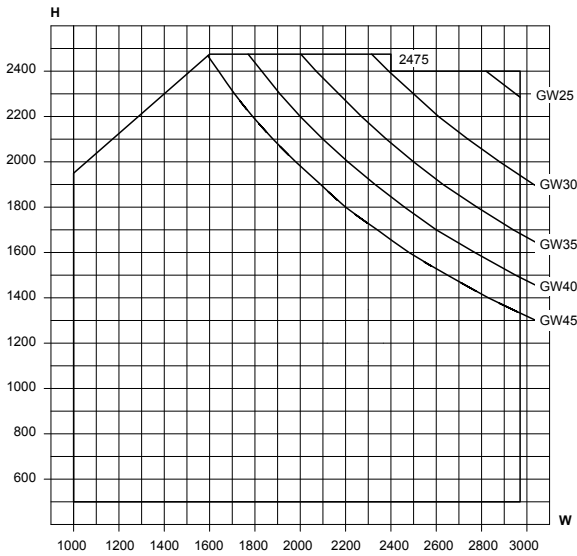
Scale: 1:5



Complete unit with fixed mullion

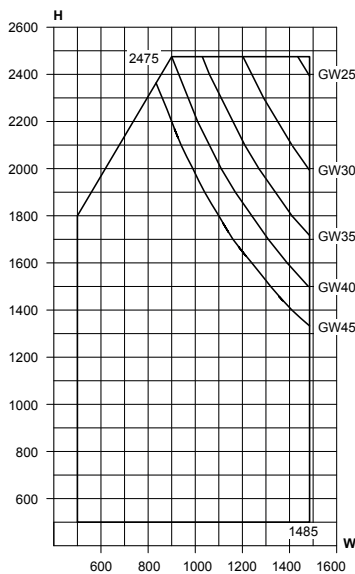
VELFAC 237 - Sliding window door, 1-leaf, DGU

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



GW. = glass weight

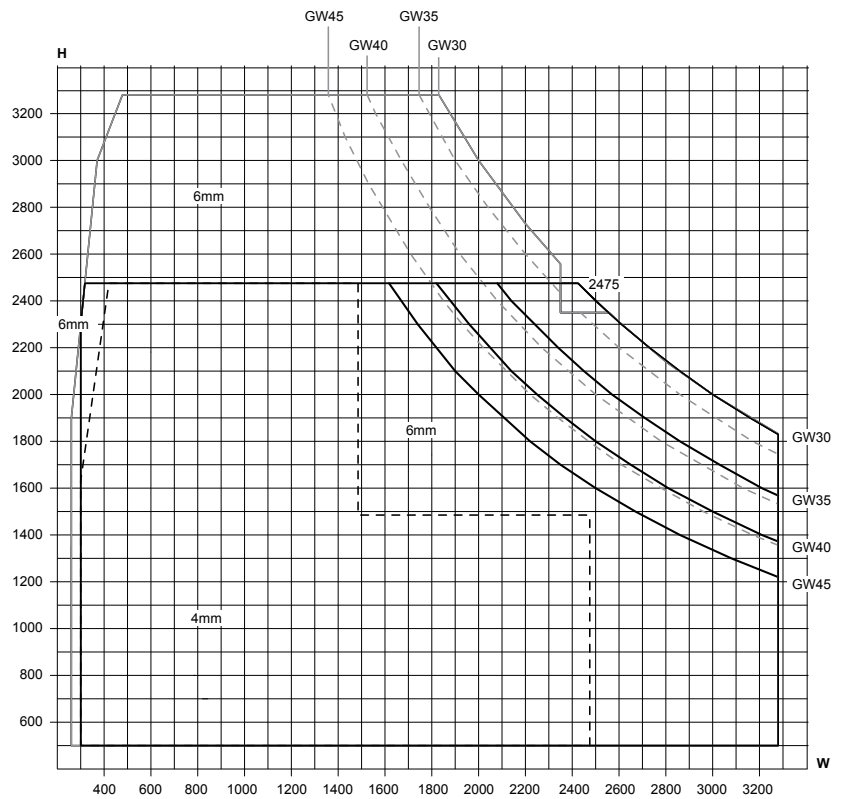
Min./max. sizes, 24mm glazing Opening sash



GW. = glass weight

N.B. All asymmetric sashes and sashes larger than the complete unit graph, will be supplied separately and must be fixed on site.

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



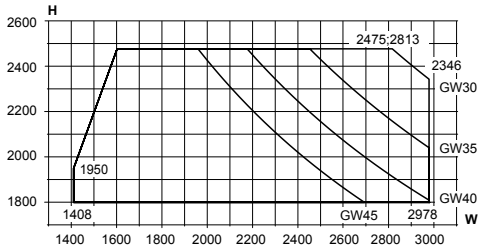
= Min./max. sizes for fixed sash

= Min./max. sizes for sidelight

- GW. 20 = Glass weight 20 kg/m² (e.g. 4-16-4)
- GW. 25 = Glass weight 25 kg/m² (e.g. 6-14-4)
- GW. 30 = Glass weight 30 kg/m² (e.g. 6-12-6 and 8-12-4)
- GW. 35 = Glass weight 35 kg/m² (e.g. 4/0.38/4-10-6)
- GW. 40 = Glass weight 40 kg/m² (e.g. 8-8-4/0.38/4)
- GW. 45 = Glass weight 45 kg/m² (e.g. 4/0.76/4-16-10)
- GW. 50 = Glass weight 50 kg/m² (e.g. 4/0.76/4-16-6-16-6)
- GW. 55 = Glass weight 55 kg/m² (e.g. 4/0.38/4-16-6-14-4/0.38/4)

VELFAC 237 - Sliding window door, 1-leaf, TGU

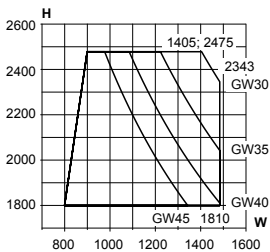
Min./max. sizes, 48mm glazing
Complete unit



N.B. All asymmetric sashes and sashes larger than the complete unit graph, will be supplied separately and must be fixed on site.

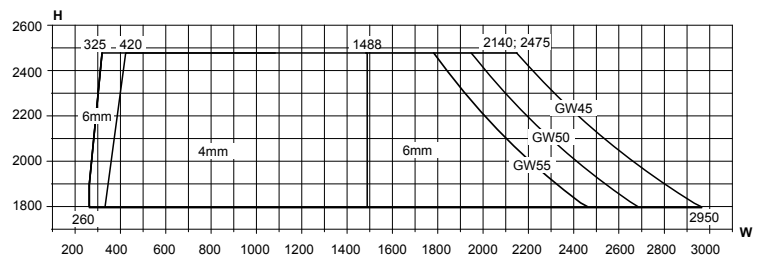
GW. = glass weight


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



GW. = glass weight

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



 = Min./max. sizes for fixed sash

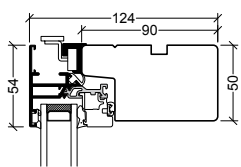
- GW. 20 = Glass weight 20 kg/m² (e.g. 4-16-4)
- GW. 25 = Glass weight 25 kg/m² (e.g. 6-14-4)
- GW. 30 = Glass weight 30 kg/m² (e.g. 6-12-6 and 8-12-4)
- GW. 35 = Glass weight 35 kg/m² (e.g. 4/0.38/4-10-6)
- GW. 40 = Glass weight 40 kg/m² (e.g. 8-8-4/0.38/4)
- GW. 45 = Glass weight 45 kg/m² (e.g. 4/0.76/4-16-10)
- GW. 50 = Glass weight 50 kg/m² (e.g. 4/0.76/4-16-6-16-6)
- GW. 55 = Glass weight 55 kg/m² (e.g. 4/0.38/4-16-6-14-4/0.38/4)

VELFAC 237-2 - Sliding window door, 2-leaf (bi-parting)

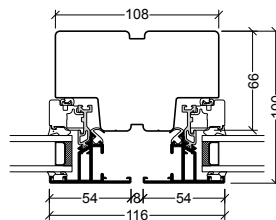


Clear opening up to 2.6 meters

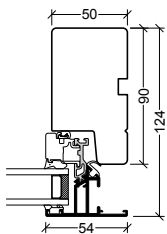
Head, sliding door



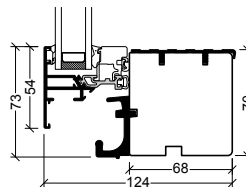
Mullion



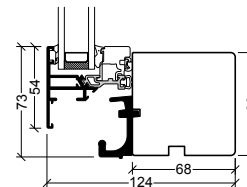
Jamb



Threshold with tread plate



Threshold without tread plate (fixed sash and side light only)

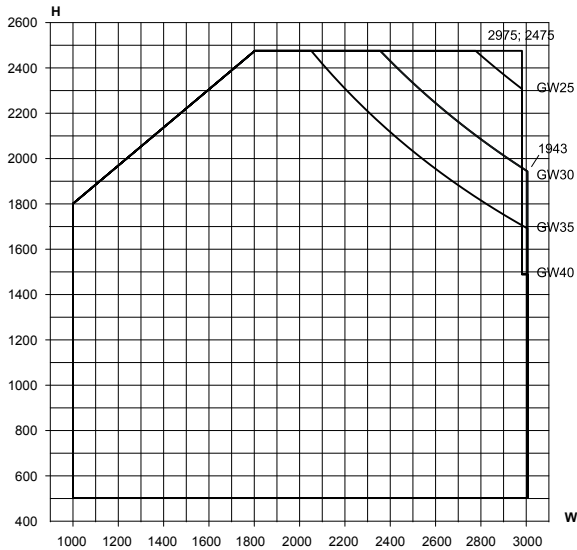


Scale: 1:5



Min./max. sizes, 24mm glazing

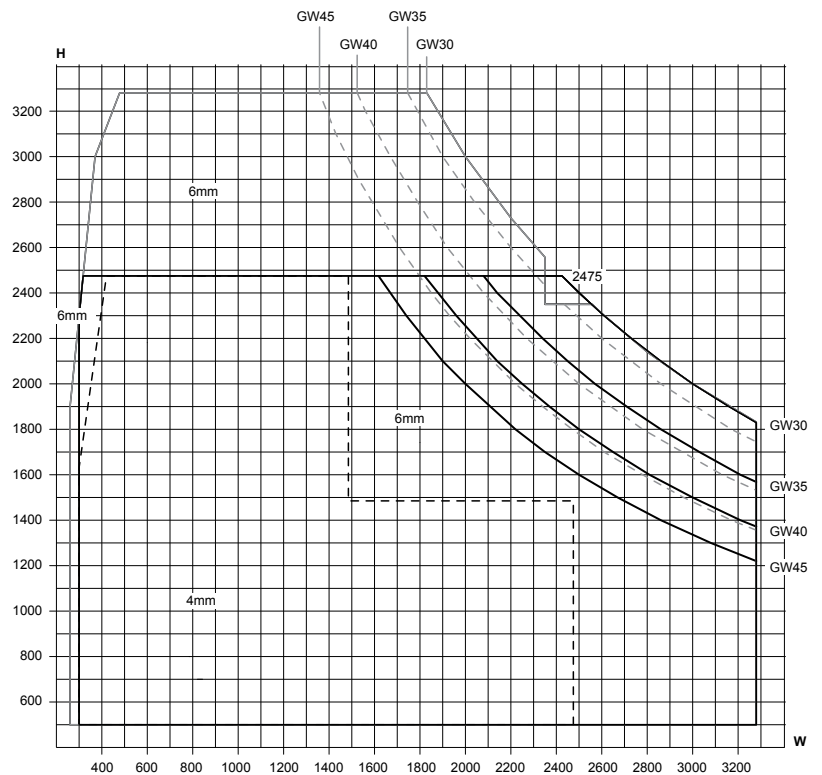
Opening sashes in 2-leaf sliding window door with French Casement



GW. = glass weight

Min./max. sizes, 24mm glazing

Fixed sashes for 2-leaf sliding window door and side light



= Min./max. sizes for fixed sash

= Min./max. sizes for sidelight

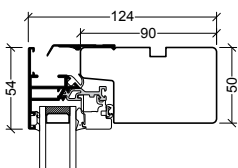
- GW. 20 = Glass weight 20 kg/m² (e.g. 4-16-4)
- GW. 25 = Glass weight 25 kg/m² (e.g. 6-14-4)
- GW. 30 = Glass weight 30 kg/m² (e.g. 6-12-6 and 8-12-4)
- GW. 35 = Glass weight 35 kg/m² (e.g. 4/0.38/4-10-6)
- GW. 40 = Glass weight 40 kg/m² (e.g. 8-8-4/0.38/4)
- GW. 45 = Glass weight 45 kg/m² (e.g. 4/0.76/4-16-10)
- GW. 50 = Glass weight 50 kg/m² (e.g. 4/0.76/4-16-6-16-6)
- GW. 55 = Glass weight 55 kg/m² (e.g. 4/0.38/4-16-6-14-4/0.38/4)

VELFAC 200 - Fire windows and doors

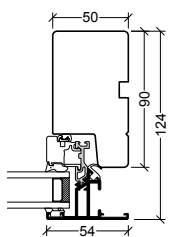


Tophung projecting light

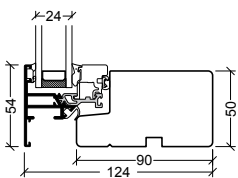
Head



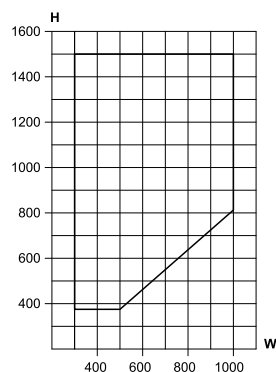
Jamb



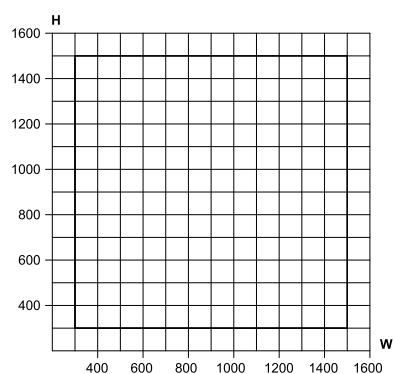
Cill



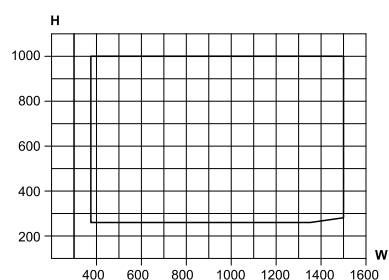
VELFAC 251, min./max. sizes
Sidehung opening light



VELFAC 250, min./max. sizes
Fixed light



VELFAC 272, min./max. sizes
Tophung projecting light



Scale: 1:5

GW. 25 = Glass weight 25 kg/m² (always 6-14-4)

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. VELFAC fire windows can be supplied in a number of different opening functions. Please notice, that fire windows and doors are only available as double glazed windows.

Function. VELFAC fire windows are flame retardent 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).

Sash functions:

Sidehung opening light, Class E60

Fixed light, Class E60

Tophung projecting light, Class E60

Reversible opening light, Class E60

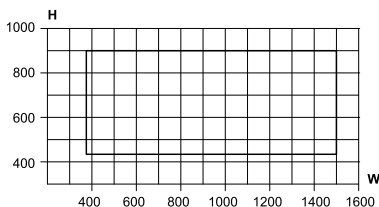
Patio door, Class E30

Ventilated fire panel, Class EI60

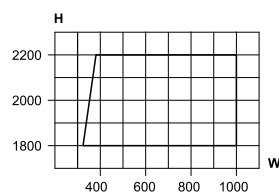
There are limitations for mullions, transoms, glazing bars, grooves, rebates and bevellings, and a limited number of combinations of glass types and coatings. Please contact VELFAC for further information.

Fittings. All fittings are made from stainless steel, natural anodised aluminium or surface-treated zinc-iron.

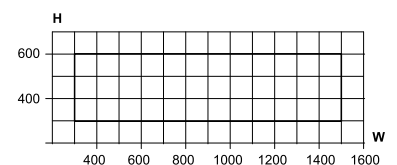
VELFAC 279, min./max. sizes
Reversible opening light



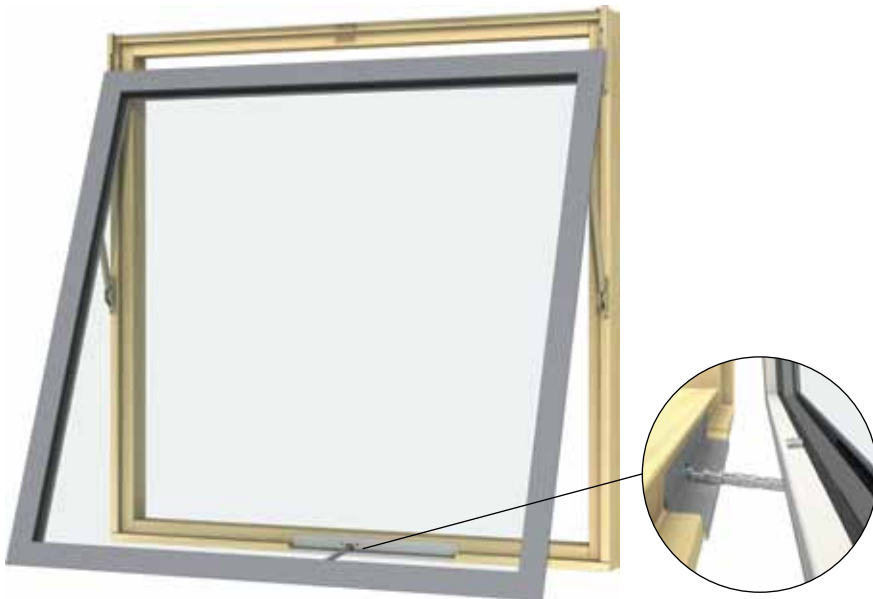
VELFAC 261, min./max. sizes
Patio door



VELFAC 200, min./max. sizes
Ventilated fire panel

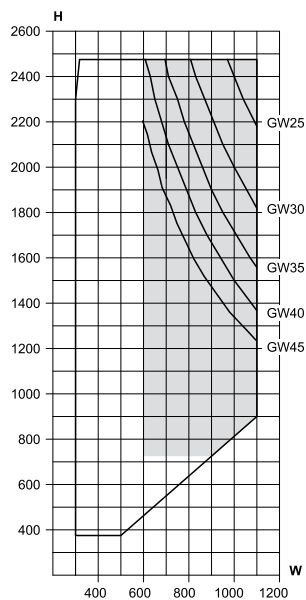


VELFAC 200 - Motorised smoke vent (CE marked)



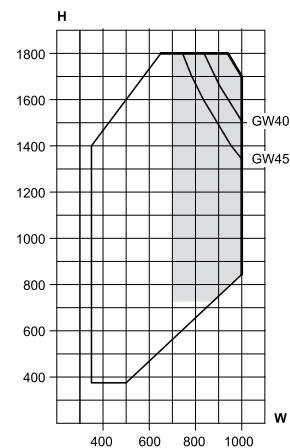
Tophung projecting smoke vent

VELFAC 201 Sidehung opening light



= Min./max. sizes for smoke vent

VELFAC 207 Sidehung projecting light



= Min./max. sizes for smoke vent

Scale: 1:5

- GW. 20 = Glass weight 20 kg/m² (e.g. 4-16-4)
- GW. 25 = Glass weight 25 kg/m² (e.g. 6-14-4)
- GW. 30 = Glass weight 30 kg/m² (e.g. 6-12-6 and 8-12-4)
- GW. 35 = Glass weight 35 kg/m² (e.g. 4/0.38/4-10-6)
- GW. 40 = Glass weight 40 kg/m² (e.g. 8-8-4/0.38/4)
- GW. 45 = Glass weight 45 kg/m² (e.g. 4/0.76/4-16-10)

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. VELFAC smoke vents are available as different opening functions.

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

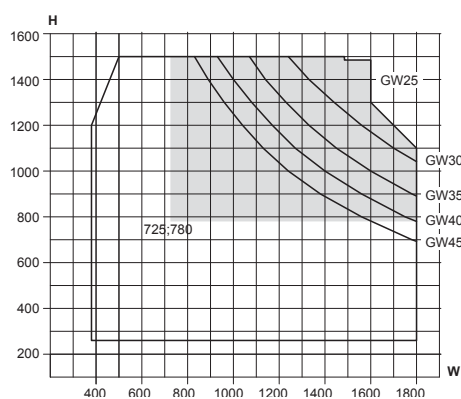
Sidehung projecting

Tophung projecting

Reversible

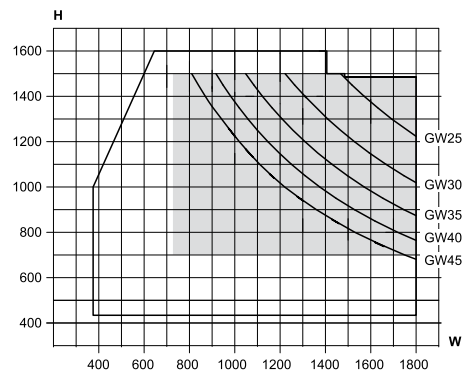
Fittings. In accordance with opening function.

VELFAC 212
Tophung projecting light



☐ = Min./max. sizes for smoke vent

VELFAC 229
Reversible light



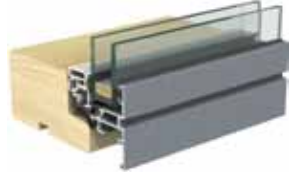
☐ = Min./max. sizes for smoke vent

VELFAC 200 - System overview

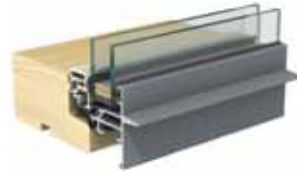
Sash variations



Standard profile
24mm glazing



Profile with groove
24mm glazing



Wing profile
24mm glazing



Flat profile
48mm glazing

Glazing bars



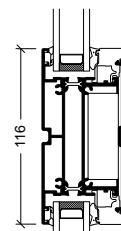
36mm



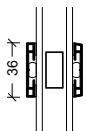
54mm



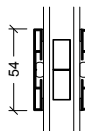
116mm



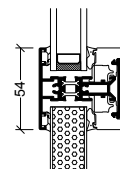
116 mm



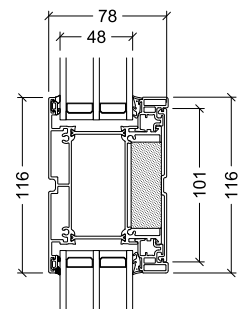
36 mm



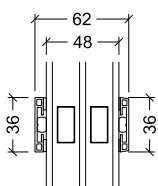
54 mm



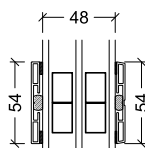
54 mm



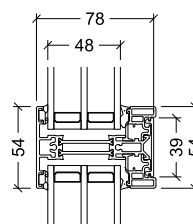
116 mm



36 mm

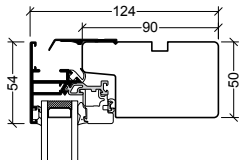


54 mm

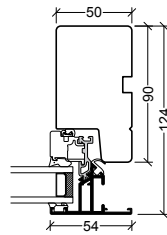


54 mm

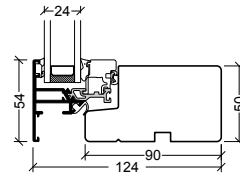
Frames



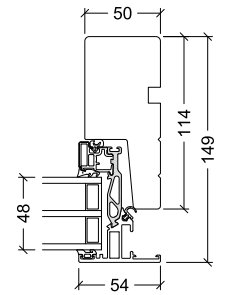
Head



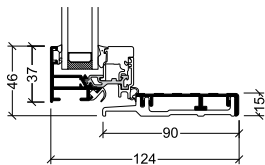
Jamb



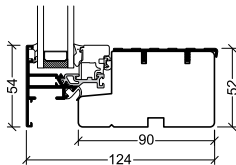
Cill



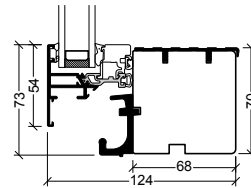
VELFAC 200 ENERGY



Threshold, 15mm

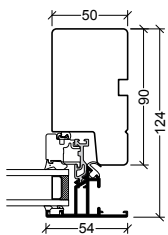


Threshold, 52mm

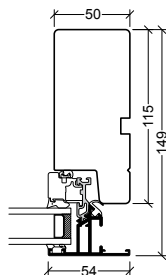


Threshold, sliding window door

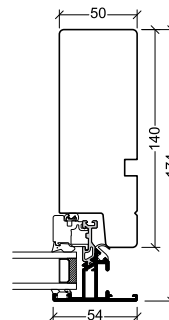
Frame variations



90mm frame

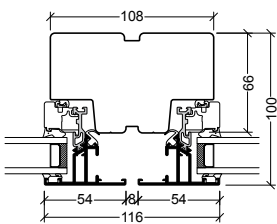


115mm frame

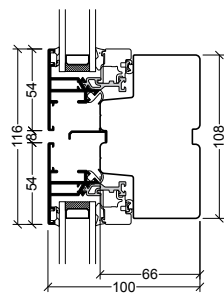


140mm frame

Mullions and transoms

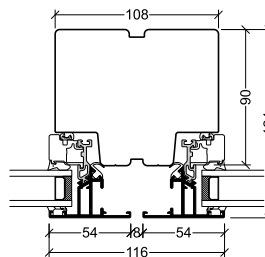


66mm mullion

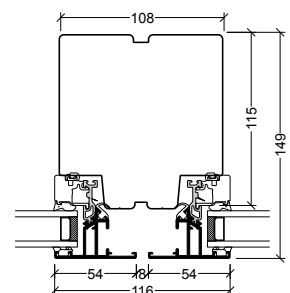


66mm transom

Mullion and transom variations



90mm mullion (transom)



115mm mullion (transom)

VELFAC 200 - Accessories



► **Espagnolette handle.**



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



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



► **Espagnolette for cylinder lock.** VELFAC 237 will be fitted with one of two handles. Supplied with or without lock and key.



► **External handle for VELFAC 231 and 237** (supplied separately).



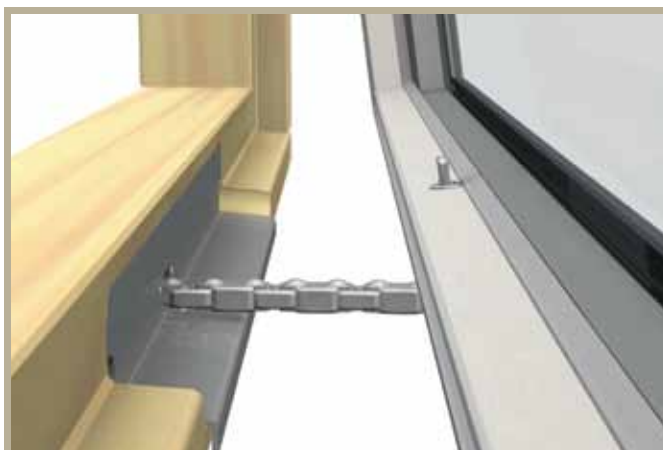
► **Maxi handle.** On all espagnolette handles for VELFAC 200. Maxi handles must be fitted after installation.



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



► **Flushbolt for French Casement** in 2-leaved VELFAC 201, 207, 231 and 237.



► **Electric opener for remote operation** of VELFAC 201, 207, 212 and 229. The motor is fully concealed and can be computer controlled for fully naturally ventilated projects. Three different chain lengths are available offering 60mm, 210mm and 440mm clear opening.



► **180° hinge for VELFAC 231.** Not available with friction brake. Grey, corrosion-proof zinc-aluminium surface finish.



► **Window stay**
130mm for VELFAC 201, 207 and 231.
 Grey, corrosion-proof zinc-aluminium surface finish.



► **PN-fitting.**
 Chromated surface finish. Not available for VELFAC 237.



► **Safety restrictor.**
 Not available for VELFAC 237.



► **Lockable restrictor.**
 Not available for VELFAC 237.
 Not applicable in connection with escape openings.



► **Click vent.**
 Free ventilation opening:
 VELFAC 200: 4000mm²,
 VELFAC 200 ENERGY:
 3000mm².
 Documentation on air flow can be requested.
 Not available for VELFAC 220 and fire windows.



► **Friction brake.**
 Standard in VELFAC 201, 207, 212, 229 and 231. Not with 180° hinge.



► **Circular catch handle** for both jambs of VELFAC 212 and 229 when sash height >1500mm for DGU and >1400mm for TGU.



► **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 D_{n,e,w} 40 dB.



VELFAC 100 Window System - Contents

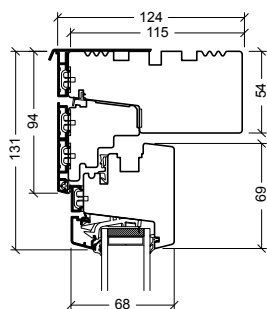
Title	Page
VELFAC 104 Turn and tilt opening light	36
VELFAC 106 Bottomhung light	37
VELFAC 134 Turn and tilt balcony door	38
VELFAC 110F Fixed side/fan light for VELFAC 104 & 134	39
VELFAC 100 System overview	40
VELFAC 100 Accessories	41

N.B. The VELFAC 100 System will only be sold in combination with an order for VELFAC 200.

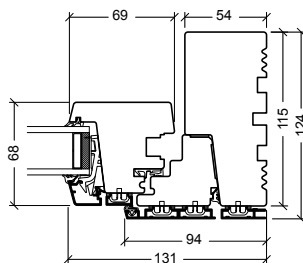
VELFAC 104 - Turn and tilt opening light



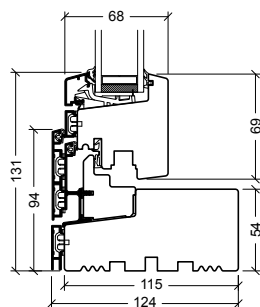
Head



Jamb



Cill



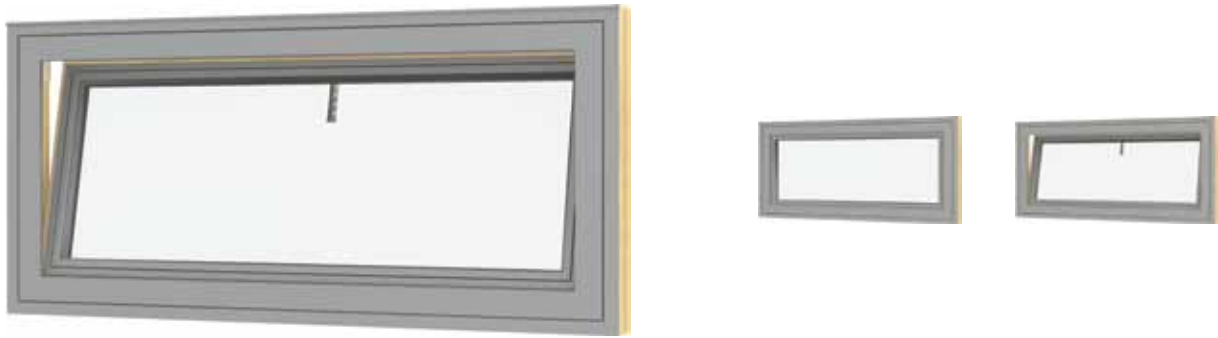
Min./max. sizes (including frame)		
Min./max.	Width (W)	Height (H)
Min.	536	586
Max.	1488	2208
Rule	W + H = max. 3276mm H x 1.5 = max. W	

Max. sash weight 100 kg (including ironmongery)

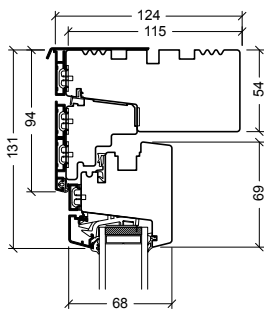
Scale: 1:5

- GW. 20 = Glass weight 20 kg/m² (e.g. 4-24-4)
- GW. 25 = Glass weight 25 kg/m² (e.g. 6-22-4)
- GW. 30 = Glass weight 30 kg/m² (e.g. 6-20-6 or 8-20-4)
- GW. 35 = Glass weight 35 kg/m² (e.g. 4/0.38/4-18-6)
- GW. 40 = Glass weight 40 kg/m² (e.g. 8-16-4/0.38/4)

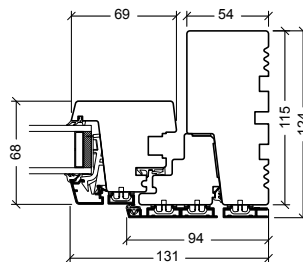
VELFAC 106 - Bottomhung light



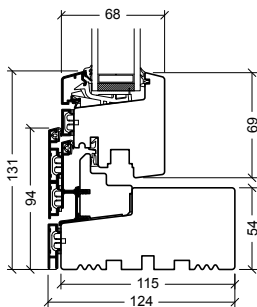
Head



Jamb



Cill



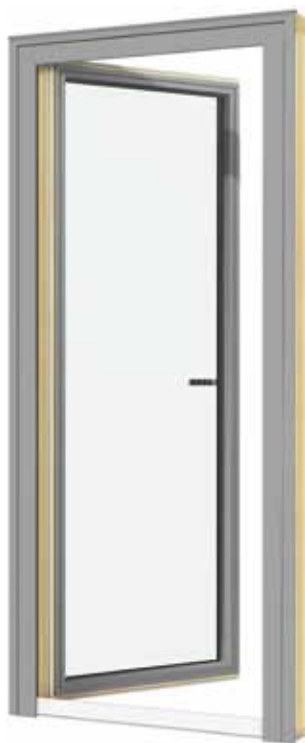
Min./max. sizes (including frame)		
Min./max.	Width (W)	Height (H)
Min.	408	455
Max.	2035	918
Rule	W + H = max. 2953mm	

Max. sash weight 100 kg (including ironmongery)

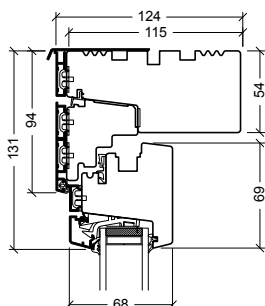
Scale: 1:5

- GW. 20 = Glass weight 20 kg/m² (e.g. 4-24-4)
- GW. 25 = Glass weight 25 kg/m² (e.g. 6-22-4)
- GW. 30 = Glass weight 30 kg/m² (e.g. 6-20-6 or 8-20-4)
- GW. 35 = Glass weight 35 kg/m² (e.g. 4/0.38/4-18-6)
- GW. 40 = Glass weight 40 kg/m² (e.g. 8-16-4/0.38/4)

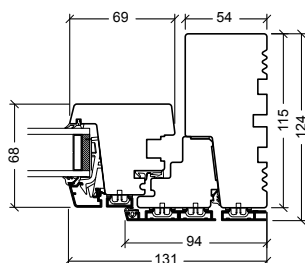
VELFAC 134 - Turn and tilt balcony door



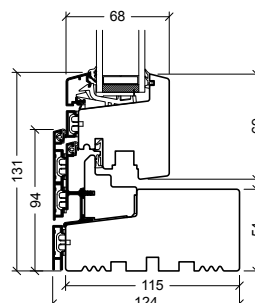
Head



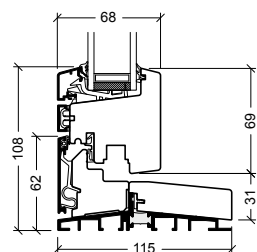
Jamb



Cill



Threshold



Min./max. sizes (including frame)		
Min./max.	Width (W)	Height (H)
Min.	536	1836
Max. 1	1008	2208
Max. 2	885	2388
Rule	W + H = max. 3216mm	

Max. sash weight 100 kg (including ironmongery)

Scale: 1:5

- GW. 20 = Glass weight 20 kg/m² (e.g. 4-24-4)
- GW. 25 = Glass weight 25 kg/m² (e.g. 6-22-4)
- GW. 30 = Glass weight 30 kg/m² (e.g. 6-20-6 or 8-20-4)
- GW. 35 = Glass weight 35 kg/m² (e.g. 4/0.38/4-18-6)
- GW. 40 = Glass weight 40 kg/m² (e.g. 8-16-4/0.38/4)

VELFAC 110F - Fixed side/fan light

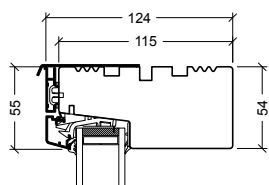
for VELFAC 104 & 134



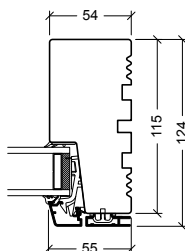
VELFAC 110F

VELFAC 104

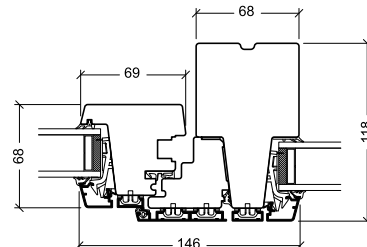
Head



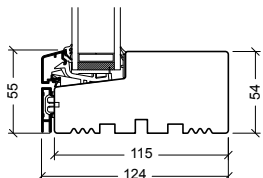
Jamb



Mullion for fixed sidelight



Cill



Min./max. sizes for a combined unit with a fixed side/fan light		
Min./max.	Width (W)	Height (H)
Min.	816	866
Max.	2988	2988
Rules	VELFAC 110F \geq 300mm Only one side of the unit \geq 2388mm Min./max. for VELFAC 104 and 134 must be kept.	

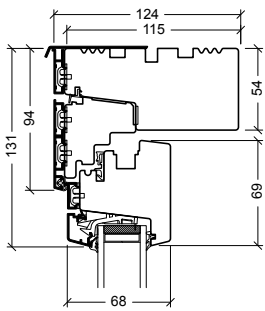
Max. sash weight 100 kg (including ironmongery)

Scale: 1:5

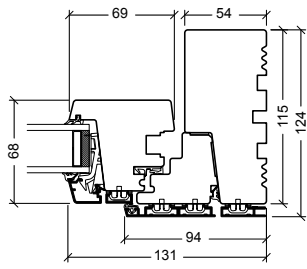
- GW. 20 = Glass weight 20 kg/m² (e.g. 4-24-4)
- GW. 25 = Glass weight 25 kg/m² (e.g. 6-22-4)
- GW. 30 = Glass weight 30 kg/m² (e.g. 6-20-6 or 8-20-4)
- GW. 35 = Glass weight 35 kg/m² (e.g. 4/0.38/4-18-6)
- GW. 40 = Glass weight 40 kg/m² (e.g. 8-16-4/0.38/4)

N.B. Max. height/width ratio is 1:7.

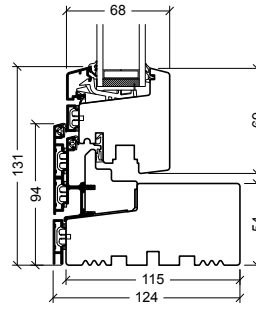
VELFAC 100 - System overview



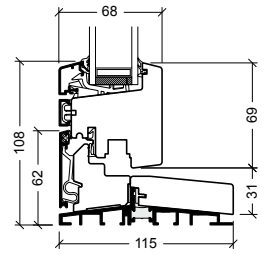
Head



Jamb

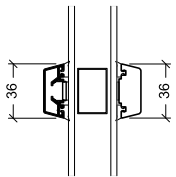
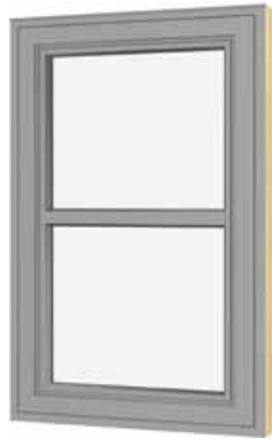
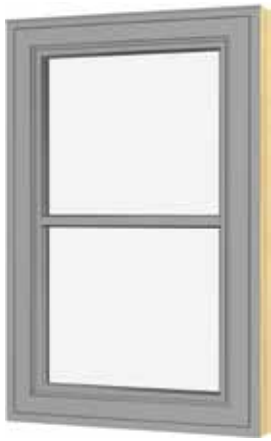


Cill

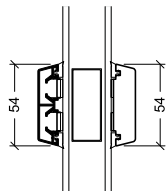


Threshold

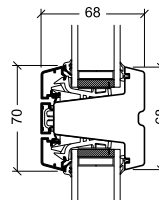
Glazing bars



36mm

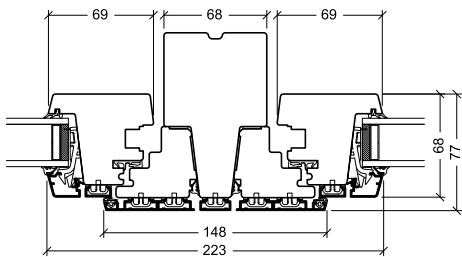


54mm

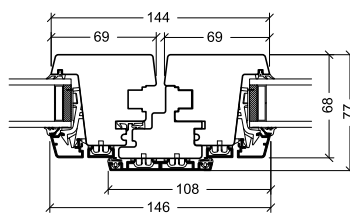


70mm

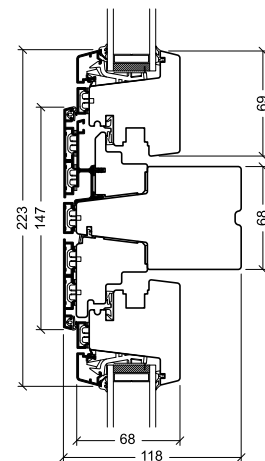
Mullions and transoms



Mullion



Mullion with French Casement



Transom

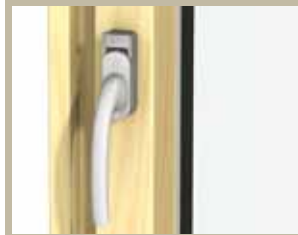
VELFAC 100 - Accessories



▶ **Aluminium handle.**
Natural anodised aluminium surface finish



▶ **Aluminium handle with lock.** Natural anodised aluminium surface finish



▶ **Aluminium handle with child-lock.** Natural anodised aluminium surface finish



▶ **Click vent.**
Free ventilation opening 4000mm². Documentation on air flow can be requested. Not available for VELFAC 220 and fire windows.



VELFAC 500 Aluminium Entrance Door System

- Contents

Title	Page
VELFAC 500 Aluminium entrance doors	44
VELFAC 500 Door features and min./max-sizes	46
VELFAC 500 System details, inward opening frames	47
VELFAC 500 System details, outward opening frames	47
VELFAC 500 Glazing bars	48
VELFAC 500 Fittings	48

N.B. The VELFAC 500 System will only be sold in combination with an order for VELFAC 200.

VELFAC 500 - Aluminium entrance doors



The entrance door is designed for installation where reliability, stability and strength are vital.

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



The main entrance door is designed for installation where reliability, stability and strength are vital.

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



The remote access door with electric strike is a remote controlled door designed for installation where restricted access is necessary. Typical situations include restricted entrances to commercial or residential buildings.

Electric strikes are used in combination with a deadlock and latch. When activated by the remote access device (not supplied), a portion of the strike retracts allowing the door to open without operating the latchbolt. 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.

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
- Inward and outward opening

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
- Inward and outward opening

Standard fittings

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



The remote access door with electric lock is a remote controlled door designed for installation where restricted access is necessary. Typical situations include restricted entrances to commercial or residential buildings.

Electric locks are used in combination with pull handles. The 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.



The escape door is 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.



The security door is an entrance door with additional security features designed to provide increased protection from intruders. The door is PAS23/24 tested.

Typical situations include main or side entrances to residential buildings.

Standard fittings

- Electromagnetic shear lock
- 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
- Inward and outward opening

Standard fittings

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

Standard fittings

- Security 5 point lock
- Slimline barrel hinges
- Lever handle
- Europrofile cylinder - keyed external and internal
- Security rosette
- Flushbolt for slave leaf
- Inward and outward opening

VELFAC 500 - Door features and min./max-sizes

Door features except for the Security door

- Made of aluminium profiles. Can be divided by one or more glazing bars, with the resulting apertures glazed or panelled.
- Can be installed as outward or inward opening, and as a single or double leaf.
- Can be coupled with VELFAC windows to create glazed entrance screens for receptions or atria.
- Is supplied with a Europrofile cylinder, and 2-4 barrel hinges depending on door leaf weight. It is also possible to specify claw hinges with anti-finger trap gaskets.
- 24mm and 36mm glazing units are possible.
- Other fittings than detailed are available. For more information please call VELFAC.

Min./max. sizes (including frame)

Door viewed from outside. Includes frame and 15 or 20mm insulated threshold.									
Outward opening					Inward opening				
Type	Width (mm)		Height (mm)		Type	Width (mm)		Height (mm)	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
Single leaf	930	1380	1873	2573	Single leaf	980	1430	1914	2614
Double leaf symmetric	1335	2635			Double leaf symmetric	1385	2685		
Master	655	1305	1873	2573	Master	705	1355	1914	2614
Slave	680	1330			Slave	680	1330		
Double leaf asymmetric	1035	2635			Double leaf asymmetric	1085	2685		
Master	655	1305	1873	2573	Master	705	1355	1914	2614
Slave	380	1330			Slave	380	1330		

Door features - Security door (PAS23/24 tested)

- Made of aluminium profiles. Can be divided by one or more 94mm glazing bars, with the resulting apertures glazed or panelled.
- Can be installed as outward or inward opening, and as a single or double leaf.
- Can be coupled with VELFAC windows to create glazed entrance screens for receptions or atria.
- Standard fittings must be used with the Security door, and there are no additional options.
- 24mm and 36mm glazing units are possible.
- The Aluminium Security Door has passed the PAS 23-1 and PAS 24-1 tests.

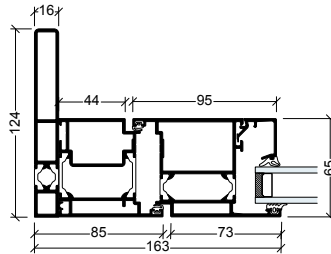
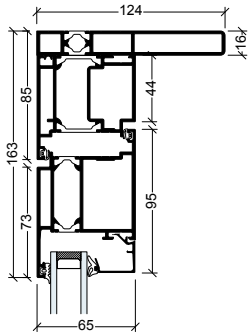


Min./max. sizes (including frame)

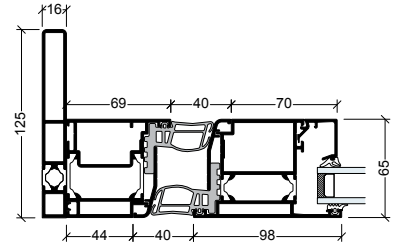
Door viewed from outside. Includes frame and 15mm SBD-threshold. Double leaf doors are with rebated meeting styles.									
Outward opening					Inward opening				
Type	Width (mm)		Height (mm)		Type	Width (mm)		Height (mm)	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
Single leaf	930	1100	1873	2200	Single leaf	980	1100	1905	2200
Double leaf symmetric	1335	2200			Double leaf symmetric	1385	2200		
Master	655	1100	1873	2200	Master	705	1100	1905	2200
Slave	680	1100			Slave	680	1100		
Double leaf asymmetric	1035	2200			Double leaf asymmetric	1085	2200		
Master	655	1100	1873	2200	Master	705	1100	1905	2200
Slave	380	1100			Slave	380	1100		

VELFAC 500 - System details

Inward opening frames

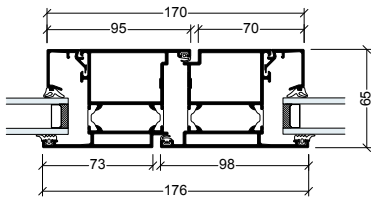


Jamb

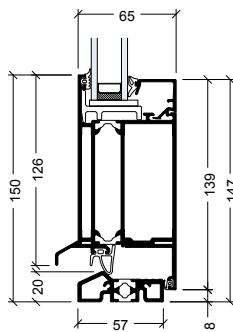


Jamb with finger protection

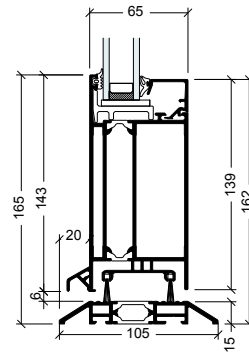
Head



Rebated meeting style



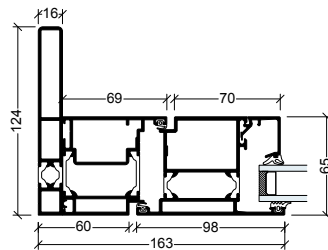
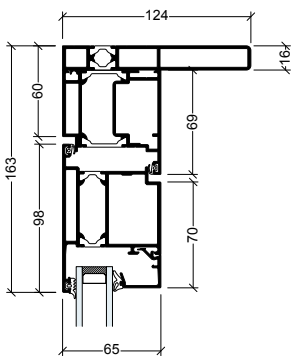
Threshold with thermal break, 20mm



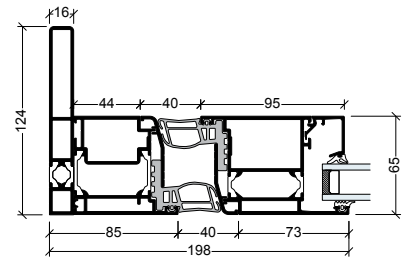
Threshold with thermal break, aluminium 15mm

Scale: 1:5

Outward opening frames

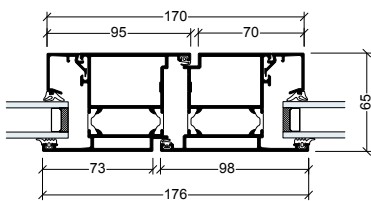


Jamb

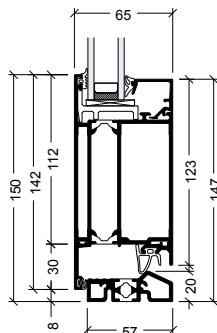


Jamb with finger protection

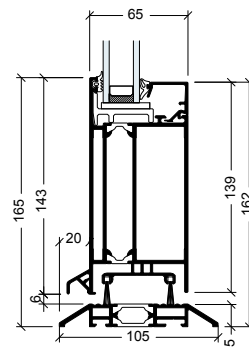
Head



Rebated meeting style



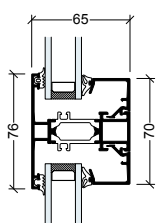
Threshold with thermal break, 20mm



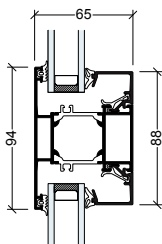
Threshold with thermal break, aluminium 15mm

Scale: 1:5

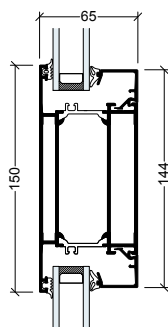
VELFAC 500 - Glazing bars



76mm



94mm



150mm

VELFAC 500 - Fittings



▶ Door closer for inward opening doors. Silver painted surface finish



▶ Door closer for outward opening doors. Silver painted surface finish



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



▶ Anti-finger trap hinge. Natural anodised surface finish

VELFAC 500 - Fittings



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



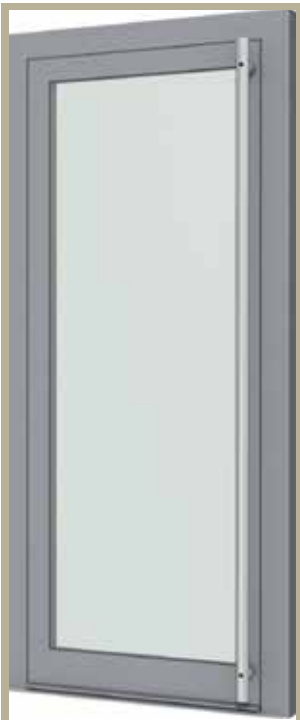
▶ **Stainless steel handle.** Polished surface finish



▶ **Emergency escape handle.**
Natural anodised aluminium surface finish



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



▶ **Full height pull handle** in stainless steel



▶ **300mm cranked pull handle** in stainless steel. Also available as 650mm handle



▶ **300mm circular pull handle** in stainless steel



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



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



VELFAC 600 Composite Wood/Alu Entrance Door System - Contents

Title	Page
VELFAC 600 Glazed entrance doors	52
VELFAC 600 Flush entrance door	53
VELFAC 600 System details	54
VELFAC 600 Glazing bars	55
VELFAC 600 Accessories	55

N.B. The VELFAC 600 System will only be sold in combination with an order for VELFAC 200.

VELFAC 600 - Glazed entrance doors

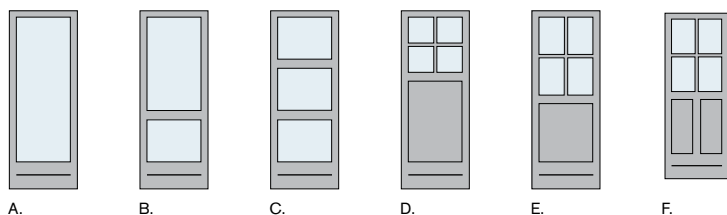


The **VELFAC 600 wood/aluminium glazed entrance door** is designed for installation where medium to heavy traffic is expected, such as the main entrance to a residential building, or as a secondary entrance to a public building or office block.

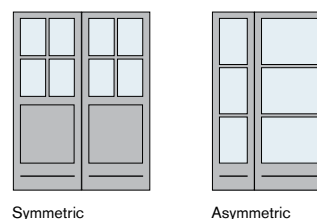
Door features

- Comprises timber sections and glazed aluminium profiles. Can be divided by one or more glazing bars, with the resulting apertures glazed or panelled.
- Can be installed as outward or inward opening, and as a single or double leaf.
- Can be coupled with VELFAC windows to create glazed entrance screens for receptions or atria.

Standard door and glazing bar configurations



Examples of 2-leaved glazed doors



Min./max. sizes 1-leaf including frame		
Min./max.	Width (W)	Height (H)
Min.	650	1710
Max.	1185	2385

Min./max. sizes 2-leaf including frame		
Min./max.	Width (W)	Height (H)
Min.	1190	1710
Max.	2385	2385

- GW. 20 = Glass weight 20 kg/m² (e.g. 4-24-4)
 GW. 25 = Glass weight 25 kg/m² (e.g. 6-22-4)
 GW. 30 = Glass weight 30 kg/m² (e.g. 6-20-6 or 8-20-4)
 GW. 35 = Glass weight 35 kg/m² (e.g. 4/0.38/4-18-6)
 GW. 40 = Glass weight 40 kg/m² (e.g. 8-16-4/0.38/4)

VELFAC 600 - Flush entrance doors

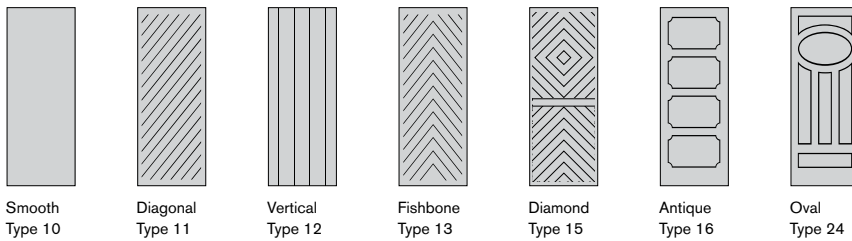


The **VELFAC 600 flush entrance door** is designed for installation where medium to heavy traffic is expected, such as the main entrance to a residential building, or a secondary entrance to a public building or office block.

Door features

- Comprises timber sections with external aluminium profiles to the frame.
- Can be installed as outward or inward opening, and as a single or double leaf.
- The smooth or grooved external finish (the internal finish is smooth) is available in several designs and incorporates a range of glass apertures.
- Can be coupled with VELFAC windows to create glazed entrance screens for receptions or atria.

Standard flush door designs



Smooth
Type 10

Diagonal
Type 11

Vertical
Type 12

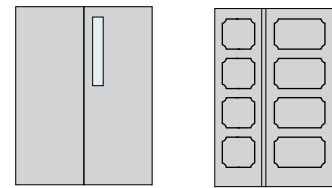
Fishbone
Type 13

Diamond
Type 15

Antique
Type 16

Oval
Type 24

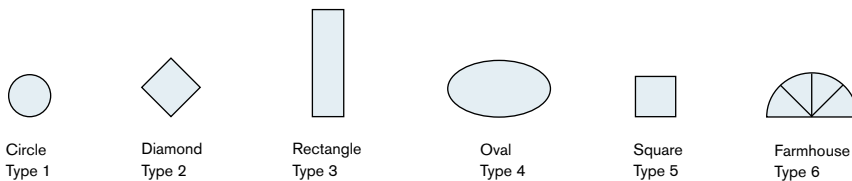
Examples of 2-leaved flush doors



Symmetric

Asymmetric

Standard flush door window types



Circle
Type 1

Diamond
Type 2

Rectangle
Type 3

Oval
Type 4

Square
Type 5

Farmhouse
Type 6

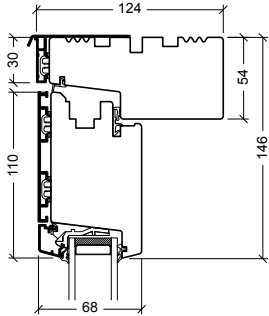
There are some limitations when combining design and window shape. Please call VELFAC for further information.

Min./max. sizes 1-leaf including frame		
Min./max.	Width (W)	Height (H)
Min.	650	1710
Max.	1185	2385

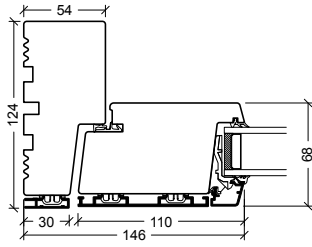
Min./max. sizes 2-leaf including frame		
Min./max.	Width (W)	Height (H)
Min.	1190	1710
Max.	2385	2385

VELFAC 600 - System details

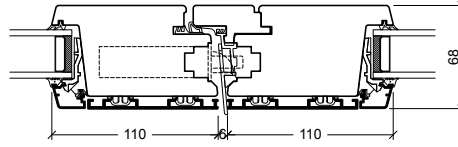
Glazed doors



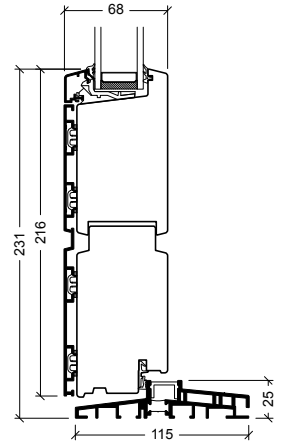
Head, outward opening



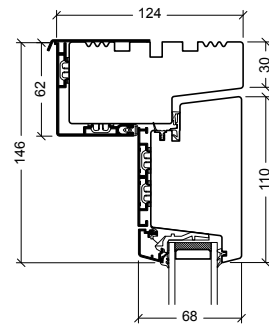
Jamb, outward opening



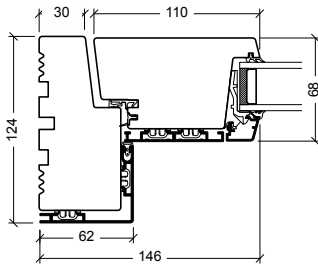
Rebated meeting style, outward opening



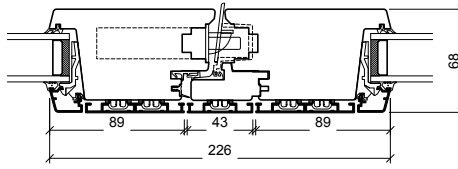
Threshold, outward opening



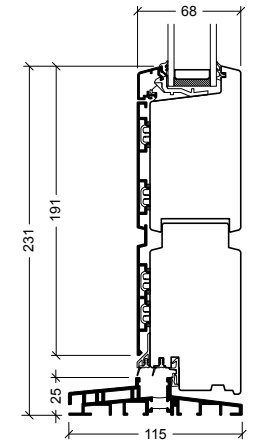
Head, inward opening



Jamb, inward opening

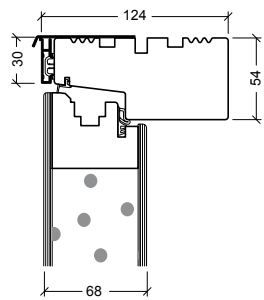


Rebated meeting style, inward opening

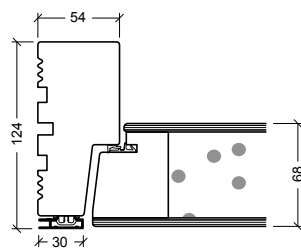


Threshold, inward opening

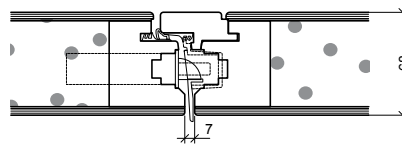
Flush doors



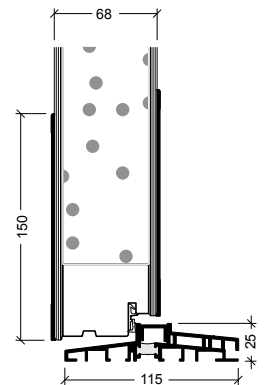
Head, outward opening



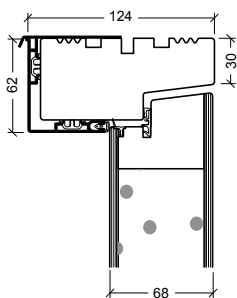
Jamb, outward opening



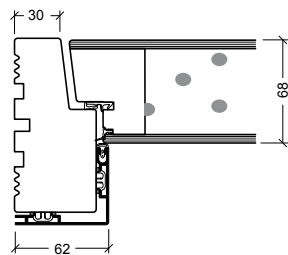
Rebated meeting style, outward opening



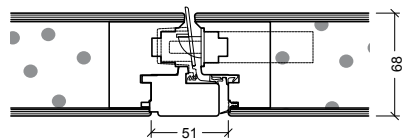
Threshold, outward opening



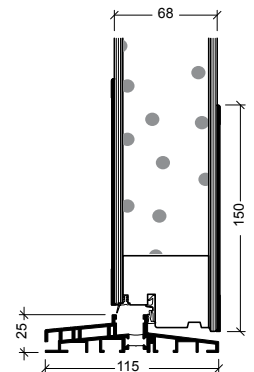
Head, inward opening



Jamb, inward opening

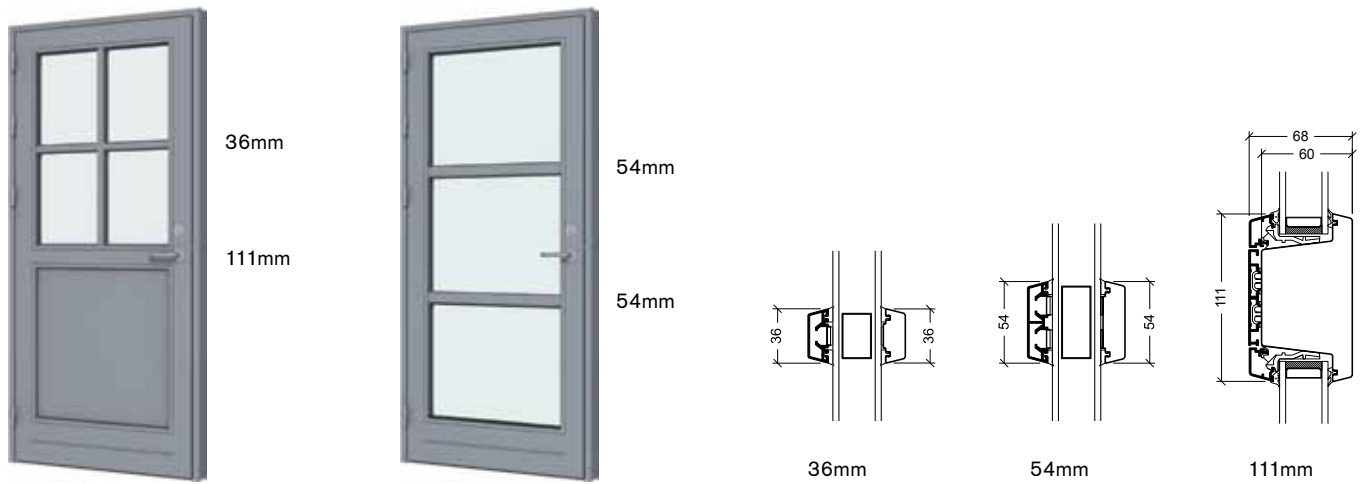


Rebated meeting style, inward opening



Threshold, inward opening

VELFAC 600 - Glazing bars



VELFAC 600 - Accessories



▶ **Lever handle.**
Matt brushed stainless steel surface finish



▶ **Letter box** in 111mm glazing bar only. Natural anodised surface finish



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



▶ **Door closer.** Silver painted surface finish



▶ **Click vent** for outward opening doors only. Natural anodised surface finish. Free ventilation opening 4000mm². Documentation on air flow can be requested



VELFAC Panels - Contents

Title		Page
VELFAC panels	Overview	58
Sandwich panel	for VELFAC 100, 200, 500 and 600	59
Ventilated panel	for VELFAC 200	60
Non-ventilated panel	for VELFAC 200	61
Louvre panel	for VELFAC 200 and VELFAC 500	62
VELFAC 280 rainscreen panel	for VELFAC 200	63

VELFAC panels - Overview

Uniform façades. VELFAC panels allow the creation of striking uniform façades, or façades with a special visual effect or function. The table below illustrate how and where the different types of panels can be used, and what visual effect may be achieved.

Panel element	Sandwich panel	Ventilated panel	Cedar panel	Rainscreen panel with frame	Rainscreen panel without frame	Louvre panel
VELFAC 100 VELFAC 200 VELFAC 500 VELFAC 600	▪ ▪ ▪ ▪	▪	▪	▪	▪	▪ ▪
Panel boards: Aluminium plate Laminated board Enamel glass Shadow box Cedar Rockpanel Louvre panel	▪ ▪	▪ ▪ ▪	▪ ▪	▪	▪	▪
Internal boards: Chipboard Veneer board		▪ ▪	▪ ▪	▪ ▪		▪ ▪

The overview table below shows the different types of panel material available for each panel type e.g. enamel glass or polyester powder coated aluminium.

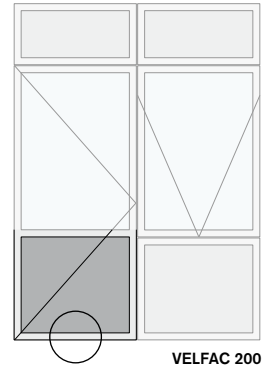
Board information	Materials	Colours	Thickness of board	Weight
Aluminium plate	Powder coated or anodised aluminium. N.B. Medium resistance to kicks or ball dents etc.	Same colour and finish range as VELFAC window sashes.	Sandwich: 1.5mm Ventilated: 2mm Rainscreen: 2mm	1.5mm: 4 kg/m ² 2mm: 5.4 kg/m ² 3mm: 8.1 kg/m ²
Laminated board	A compact resin laminated board, specially designed for external use. Resistant to most common chemicals, kicks, ball dents and vandalism	PP1040 (NCS S 0502-G50Y) PP1302 (NCS S 2500-N) PP1944 (NCS S 6502-B) PP2020 (NCS S 4500-N)	Sandwich: 2mm Ventilated: 6mm	2mm: 2.8 kg/m ² 6mm: 8.4 kg/m ²
Enamel glass	Toughened glass with hard-fired painted reverse	RAL 7011 RAL 9005 RAL 7016 RAL 9016 RAL 7035 RAL 9018	Ventilated: 6mm	15 kg/m ²
Cedar	A diffusion open, composite timber board faced with cedar slats and no visible fixings	Untreated Western Redwood Cedar	Cedar: 24mm	15 kg/m ²
Rock panel	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	1.05 kg/m ²
Louvre panel	Aluminium. 30mm between the blades. Insect screen included	Natural anodised or powder coated in a wide selection of RAL colours		12 kg/m ²

VELFAC sandwich panel

for VELFAC 100, 200, 500 and 600

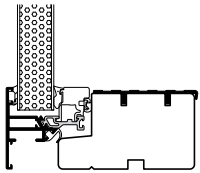
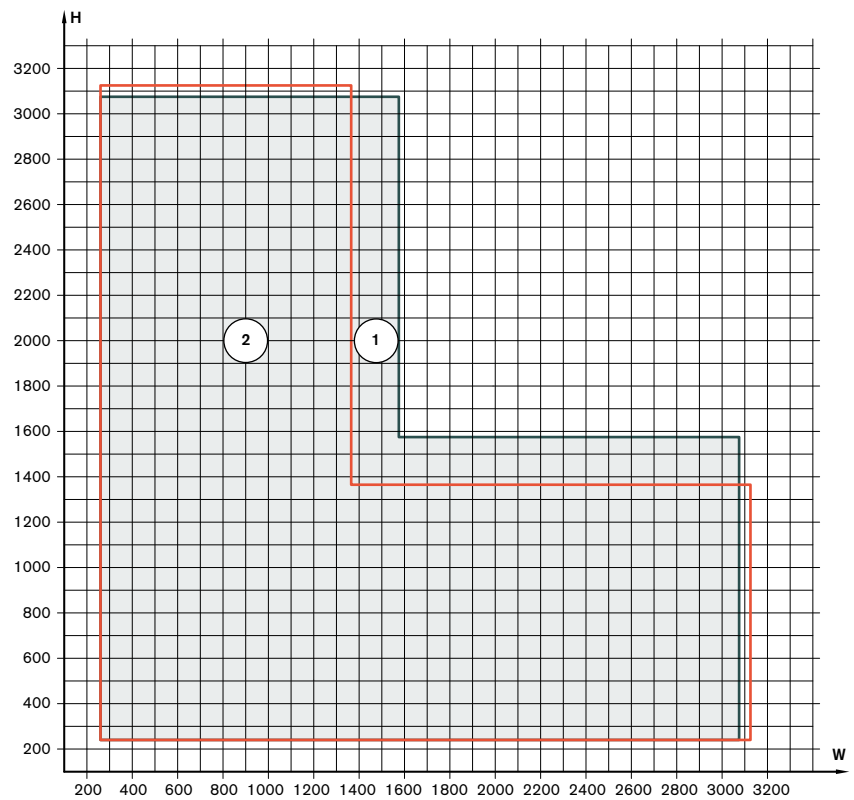


VELFAC 200



VELFAC 200

Min./max. sizes for VELFAC 200 sandwich panel*



VELFAC 200 sandwich panel

NB: Sandwich panels >1800mm must be divided by a glazing bar.

Panel	U _{panel} -value (centre value)					
	VELFAC 100	VELFAC 200			VELFAC 500	VELFAC 600
	32mm	24mm	36mm	48mm	24mm	32mm
Aluminium plate	0.88	0.99	0.67	0.51	0.99	0.75
Laminated board		1.02	0.68	0.52		

Panel type 1	Panel type 2
2 x 1.5mm Aluminium	2 x 2mm Laminated board

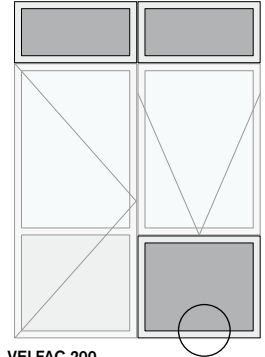
* N.B.: Min./max. sizes for VELFAC 100 = Min./max. sizes for VELFAC 200 + 100mm
Min./max. sizes for door panels = Min./max. sizes of the door

Ventilated VELFAC panel

for VELFAC 200

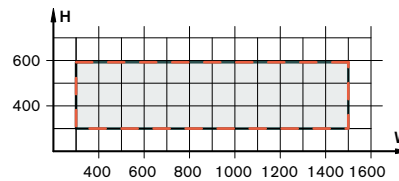


VELFAC 200
with aluminium plate

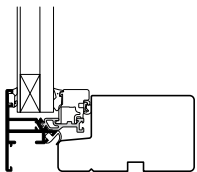
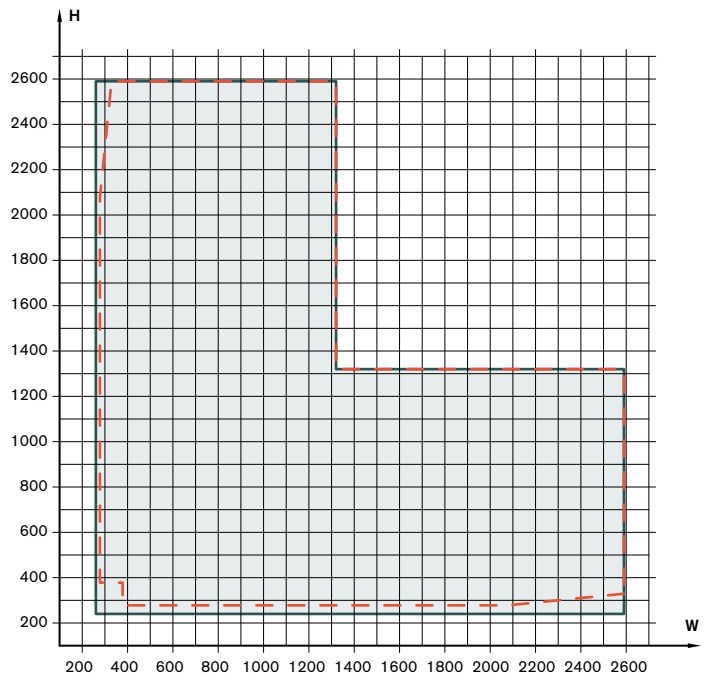


VELFAC 200

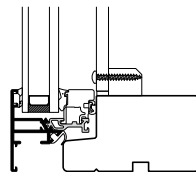
Min./max. sizes for ventilated fire panel



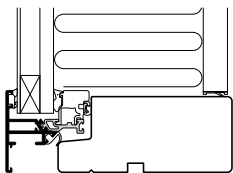
Min./max. sizes for ventilated panels with backboard*



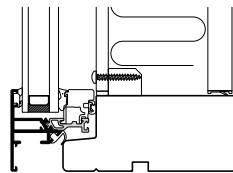
VELFAC 200 ventilated panel
without backboard (1 + 2)



VELFAC 200 Shadow-box
without backboard (3)



VELFAC 200 ventilated panel
with backboard (1 + 2)



VELFAC 200 Shadow-box
with backboard (3)

	U_{panel} -value (centre value)			
	VELFAC 200		VELFAC 200 ENERGY	
Panel with insulation ($\lambda=0.037$) and backboard				
Frame depth	90mm	115mm	114mm	139mm
Enamel glass (24mm glazing)	0.40	0.32		
Enamel glass (36mm glazing)	0.40	0.31		
Enamel glass (48mm glazing)			0.40	0.31
Aluminium plate	0.40	0.32	0.40	0.31
Laminated plate	0.40	0.32	0.40	0.31
Shadow-box	0.51	0.38	0.51	0.38

Panel type 1	Panel type 2
2mm Aluminium plate, 6mm Laminated board	Shadow box, 6mm Enamel glass

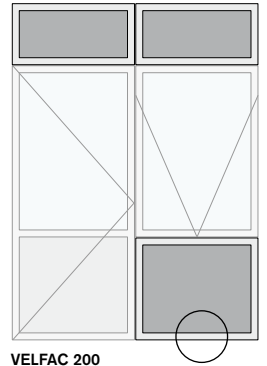
* N.B.: Ventilated panels without internal backboard can be bigger than min./max. shown here.

Non-ventilated VELFAC panel

for VELFAC 200

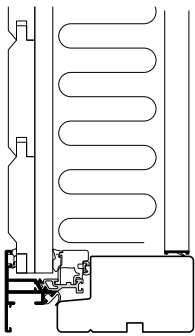


VELFAC 200
with Cedar wood

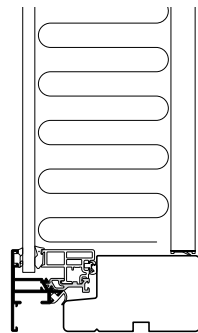


VELFAC 200

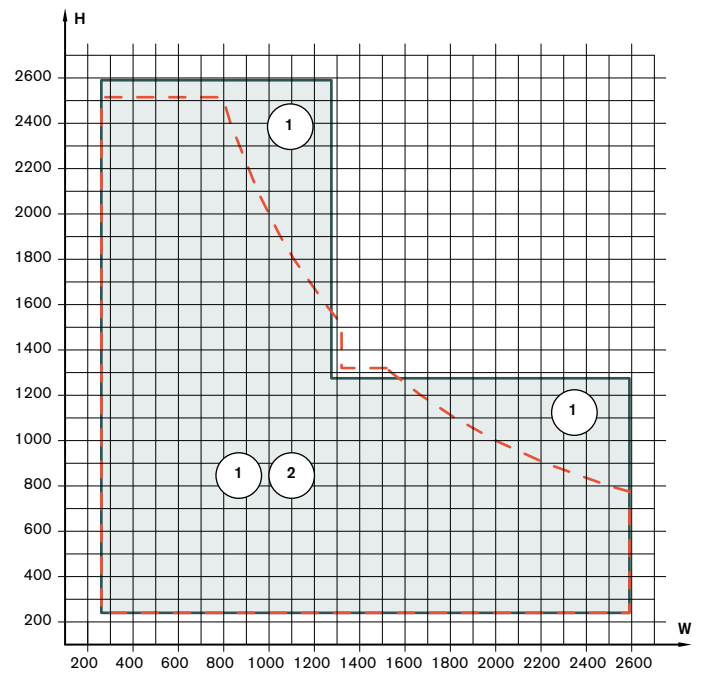
Min./max. sizes for VELFAC 200 non-ventilated panels with backboard



VELFAC 200
with cedar panel



VELFAC 200
with rockpanel



Panel with insulation ($\lambda=0.037$) and backboard	U_{panel} -value (centre value)			
	VELFAC 200		VELFAC 200 ENERGY	
Frame depth	90mm	115mm	114mm	139mm
Cedar panel	0.34	0.28	0.28	0.24
Rockpanel	0.35	0.29		

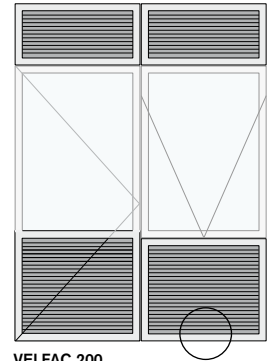
Panel type 1	Panel type 2
8mm Rockpanel	24mm Cedar panel

VELFAC louvre panel

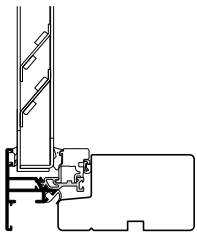
for VELFAC 200 and VELFAC 500



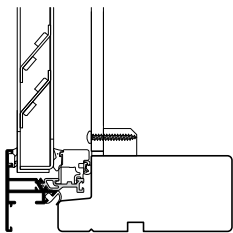
VELFAC 200



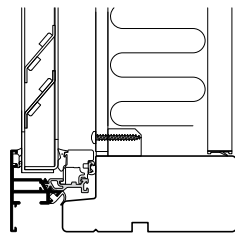
VELFAC 200



VELFAC 200 louvre panel
with fly mesh only (1)
Web no.: PA200-L-V-01

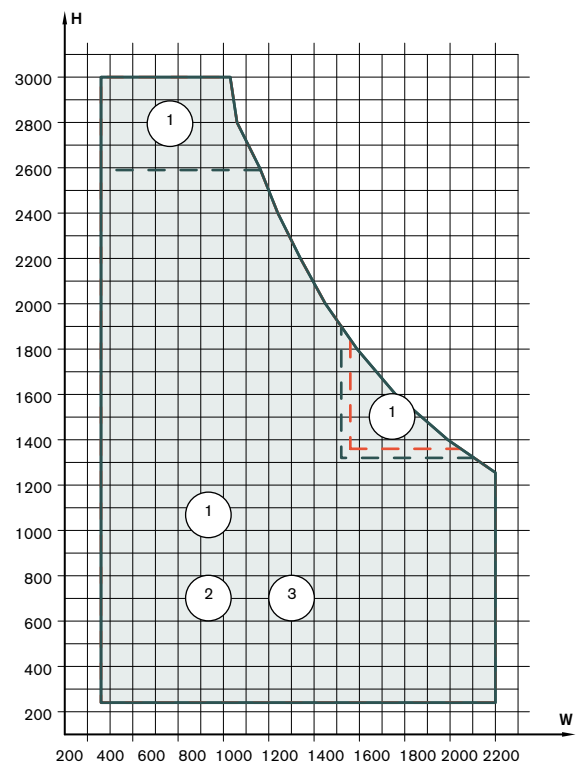


VELFAC 200 louvre panel
with intermediate board (2)



VELFAC 200 louvre panel
with intermediate board
and backboard (3)

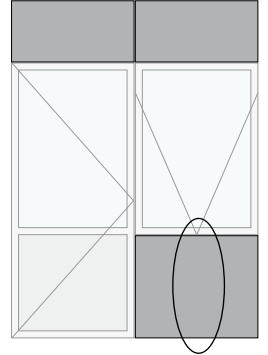
Min./max. sizes for VELFAC 200 louvre panel



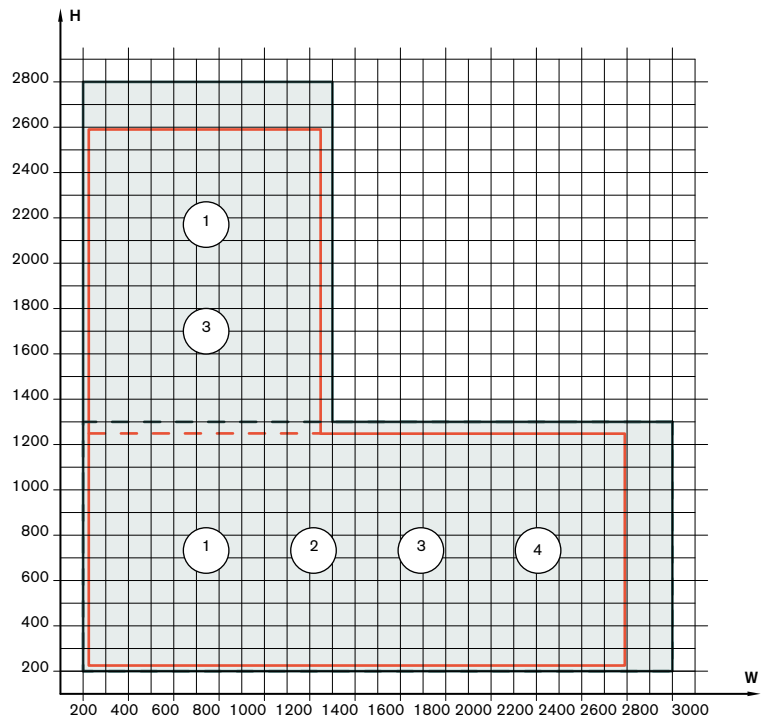
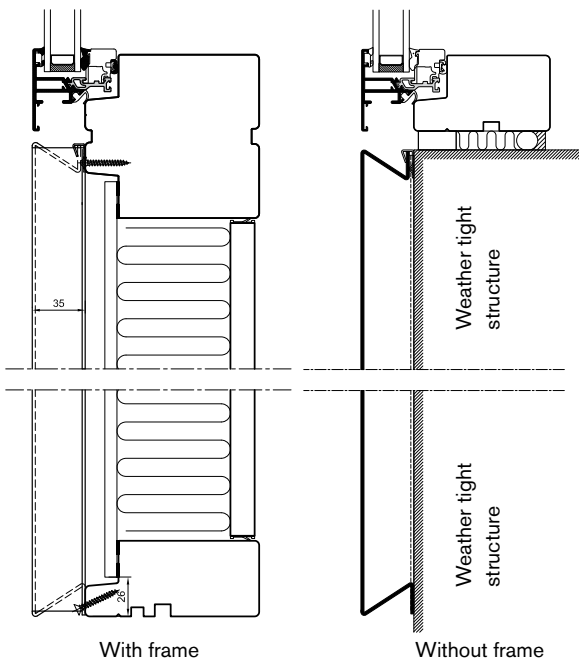
Louvre panel	U _{panel} -value (centre value)	
	90mm frame	115mm frame
with intermediate board, insulation (λ=0.037) and backboard	0.63	0.44

Panel type 1 ————	Panel type 2 - - - - -
without backboard	with intermediate board
Panel type 3 - - - - -	
with backboard	

VELFAC 280 rainscreen panel



Min./max. sizes for panel with frame



	U_{panel} -value (centre value)			
	VELFAC 200		VELFAC 200 ENERGY	
Frame depth	90mm	115mm	114mm	139mm
VELFAC 280 with frame, insulation ($\lambda=0.037$) and backboard	0.47	0.36	0.47	0.36

Panel type 1 ————	Panel type 2 - - - -
without frame. 2mm Aluminium, RAL-colour	without frame. 2mm Aluminium, anodised
Panel type 3 ————	Panel type 4 - - - -
limits for rain screen panel with frame	limits for anodised rain screen panel with frame



VELFAC Glazing - Contents

Title		Page
VELFAC Glazing	Definition of glazing values	66
VELFAC Glazing	Calculation of glass weight	66
VELFAC CLEAR	Improved insulation	67
VELFAC SUN	Solar protection	68
VELFAC DÉCOR	Opacity	69
VELFAC SOUND	Noise reduction	70

Making life simple. Specifying glass has never been easy. With thousands of designs available from hundreds of suppliers, making the right decision has always been difficult - until now.

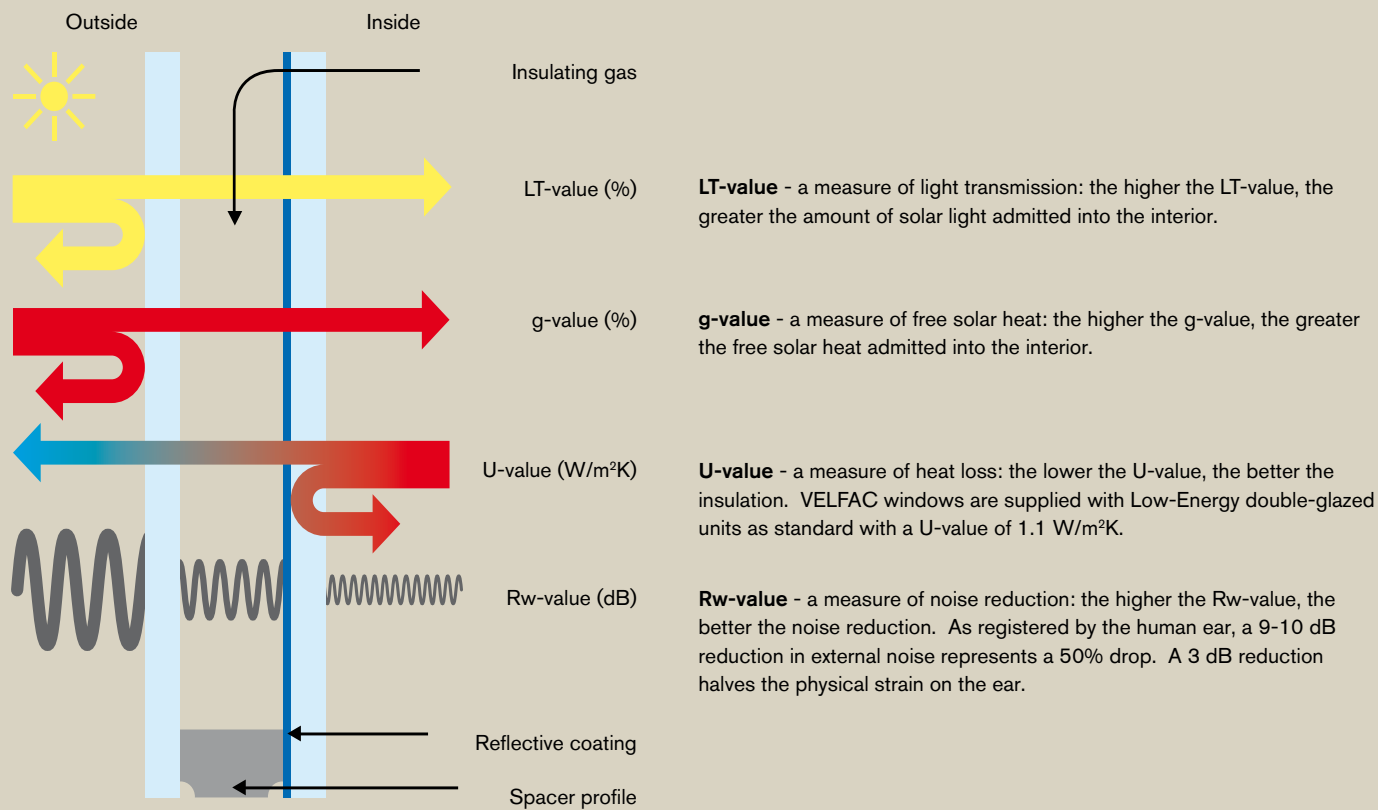
By responding to the needs of both architects and clients, VELFAC has developed its own comprehensive glass range, sourced from the best suppliers on the market. We can provide a simple, transparent price structure and reduced delivery times for standard options - all adding to the glazing benefits on offer.

VELFAC windows are supplied with low-energy glazing as standard, but a wealth of additional options are also available.

Defining Needs. 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.

All double-glazed units within the VELFAC Glazing concept are EN 1279 compliant.

VELFAC Glazing - Definition of glazing values



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 therefore not measured.

Example:			
4-16-4 pane	= (4+4) x 2.5 kg	= 20 kg/m ²	= GW 20
6-14-4 pane	= (6+4) x 2.5 kg	= 25 kg/m ²	= GW 25
3/0.38/3-14-4 pane	= (6.38+4) x 2.5 kg	= 26 kg/m ²	= GW 26
6-12-6 pane	= (6+6) x 2.5 kg	= 30 kg/m ²	= GW 30
8-12-4 pane	= (8+4) x 2.5 kg	= 30 kg/m ²	= GW 30
4/0.76/4-10-6 pane	= (8.76+6) x 2.5 kg	= 37 kg/m ²	= GW 37
8-8-4/0.38/4 pane	= (8+8) x 2.5 kg	= 40 kg/m ²	= GW 40

VELFAC CLEAR - Improved insulation

If you need energy efficient glazing - without additional solar protection - then VELFAC CLEAR provides an ideal starting point.

VELFAC CLEAR glass provides a light, pleasant interior and a clear view of the external environment. Excellent insulation properties are achieved by incorporating a heat reflecting coating on the inner surface of the glass and argon gas within the glazing cavity. These features provide an improved internal environment by reducing down-draught, and can help to reduce heating costs.

VELFAC CLEAR glass can be used in any unit within the VELFAC range, and can be combined with other glass types to improve features such as solar protection, fire protection, or safety and security. It can even be supplied as opaque.



Construction	Type of glass	U-value* BS/EN673	LT-value BS/EN410	g-value BS/EN410	Noise reduction** PANE / WINDOW
4-16-4*** argon	VELFAC CLEAR / ENERGY	1.11	0.80	0.62	Rw = 32 / 32 dB
6-14-4 argon	VELFAC CLEAR / ENERGY	1.14	0.79	0.59	Rw = 35 / 35 dB
6-12-6 argon	VELFAC CLEAR / ENERGY	1.26	0.78	0.59	Rw = 34 / 32 dB
8-12-4 argon	VELFAC CLEAR / ENERGY	1.26	0.79	0.58	Rw = 35 / 35 dB

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

** The table shows noise reduction (Rw) values for double-glazed units (left value) and an entire VELFAC 200 system window (right value) measuring (W x H) = 1230 mm x 1480 mm.

*** Standard in all VELFAC 200 and VELFAC 500 windows and doors

VELFAC SUN - Solar protection



If the design of your project requires a reduction in heat through the glazing, e.g. on South or West facing façades, then you should choose VELFAC SUN.

VELFAC SUN25 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.

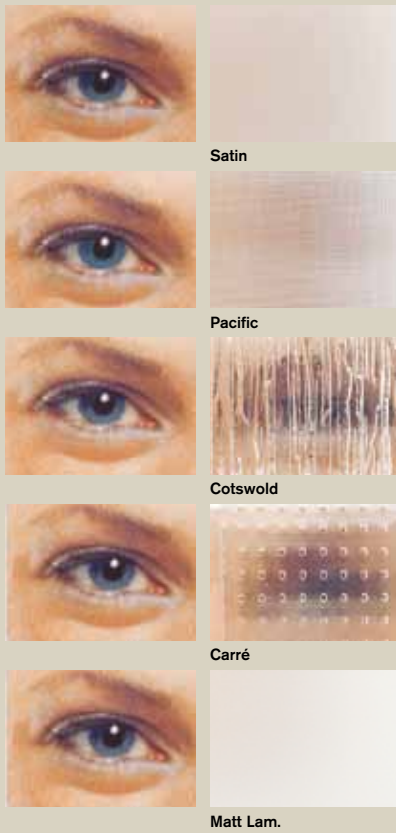
VELFAC SUN35 is a little darker in colour than SUN25, and therefore offers greater protection against unwanted solar gain. Although the coating remains very transparent, the colours of the external view will be slightly affected.

Construction	Type of glass	U-value* BS/EN673	LT-value BS/EN410	g-value BS/EN410	Noise reduction** PANE / WINDOW
6-14-4 argon	VELFAC SUN25 / CLEAR	1.15	0.68	0.41	Rw = 35 / 35 dB
6-12-6 argon	VELFAC SUN25 / CLEAR	1.28	0.67	0.41	Rw = 34 / 32 dB
6-14-4 argon	VELFAC SUN35 / CLEAR	1.15	0.50	0.27	Rw = 35 / 35 dB
6-12-6 argon	VELFAC SUN35 / CLEAR	1.28	0.50	0.27	Rw = 34 / 32 dB

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

** The table shows noise reduction (Rw) values for double-glazed units (left value) and an entire VELFAC 200 system window (right value) measuring (W x H) = 1230 mm x 1480 mm.

VELFAC DÉCOR - Opacity



VELFAC DÉCOR opaque 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 Laminated - 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 Opaque 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.

Construction	Type of glass	U-value* BS/EN673	LT-value*** BS/EN410	g-value*** BS/EN410	Noise reduction** PANE / WINDOW
4-16-4 argon	VELFAC DÉCOR Satin / ENERGY	1.11	app. 0.64	app. 0.55	Rw = 32 / 32 dB
4-16-4 argon	VELFAC DÉCOR Pacific / ENERGY	1.11	app. 0.74	app. 0.60	Rw = 32 / 32 dB
4-16-4 argon	VELFAC DÉCOR Cotswold / ENERGY	1.11	app. 0.79	app. 0.62	Rw = 32 / 32 dB
4-16-4 argon	VELFAC DÉCOR Carré / ENERGY	1.11	app. 0.79	app. 0.62	Rw = 32 / 32 dB
3/0.38/3-14-4 argon	VELFAC DÉCOR Matt Lam / ENERGY	1.14	app. 0.54	app. 0.44	Rw = 35 / 36 dB

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

** The table shows noise reduction (Rw) values for double-glazed units (left value) and an entire VELFAC 200 system window (right value) measuring (W x H) = 1230 mm x 1480 mm.

*** LT- and g-values are estimated values as they cannot be measured for opaque glass.

VELFAC SOUND - Noise reduction



Efficient glazing is fundamental to noise control. Double-glazing is effective at reducing external noise, but the use of thicker glass or different combinations of glass can significantly improve performance. More precise decibel control can also be achieved in this way.

Glazing is given an Rw rating indicating the number of decibels by which they will reduce apparent noise. A standard VELFAC double-glazed unit achieves Rw32, which can be increased to Rw41 by adjusting the thickness of the glass and the glazing rebate.

VELFAC can offer a number of different solutions for extreme environments - for example, close proximity to airports, motorways, or railway lines. The optimum solution, the VELFAC 2+1 window, achieves Rw48. Please call VELFAC for solutions to your specific noise reduction requirements.

Safety, security and opaque glass can be combined with noise-reduction options.

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.

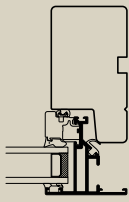
Construction	Type of glass	Energy values for GLAZING*			Noise reduction for the WINDOW**		
		U-value BS/EN673	LT-value BS/EN410	g-value BS/EN410	Rw	Rw + C	Rw + Ctr
		VELFAC 200 window					
4-16-4*** argon	VELFAC CLEAR / ENERGY	1.11	0.80	0.62	32 dB	31 dB	27 dB
6-14-4 argon	VELFAC CLEAR / ENERGY	1.14	0.79	0.59	35 dB	34 dB	31 dB
3/0.38/3-14-4 argon	VELFAC SAFETY / ENERGY	1.14	0.79	0.57	36 dB	34 dB	31 dB
4/0.76/4-12-4 argon	VELFAC SOUND / ENERGY	1.26	0.78	0.55	38 dB	36 dB	33 dB
4/0.76/4-10-6 argon	VELFAC SOUND / ENERGY	1.42	0.77	0.55	39 dB	37 dB	34 dB
4-18-4-18-4 argon	VELFAC ENERGY / CLEAR / ENERGY	0.53	0.72	0.50	33 dB	31 dB	27 dB

* The U-, LT, and g-values only apply to the pane itself. The values for an entire window must be calculated separately. Please call VELFAC for more information.

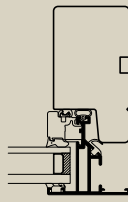
** The table shows noise reduction (Rw) values for a VELFAC 200 system window measuring (W x H) = 1230 mm x 1480 mm.

*** Standard in all VELFAC 200 and VELFAC 500 windows and doors.

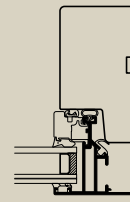
VELFAC 200



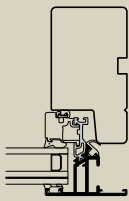
Glazing: 4-16-4
 $R_w = 32$ dB
 $R_w + C = 31$ dB
 $R_w + C_{tr} = 27$ dB



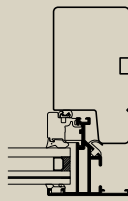
Glazing: 6-14-4
 $R_w = 35$ dB
 $R_w + C = 34$ dB
 $R_w + C_{tr} = 31$ dB



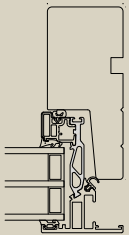
Glazing: 3/0.38/3-14-4
 $R_w = 36$ dB
 $R_w + C = 34$ dB
 $R_w + C_{tr} = 31$ dB



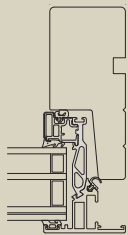
Glazing: 4/0.76/4-12-4
 $R_w = 38$ dB
 $R_w + C = 36$ dB
 $R_w + C_{tr} = 33$ dB



Glazing: 4/0.76/4-10-6
 $R_w = 39$ dB
 $R_w + C = 37$ dB
 $R_w + C_{tr} = 34$ dB



Glazing: 4-18-4-18-4
 $R_w = 33$ dB
 $R_w + C = 31$ dB
 $R_w + C_{tr} = 27$ dB

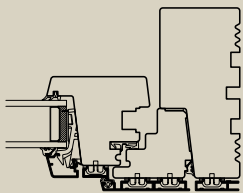


Glazing:
 4/0.76/4-18-4-12-4
 $R_w = 41$ dB
 $R_w + C = 39$ dB
 $R_w + C_{tr} = 34$ dB

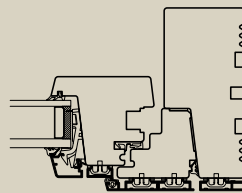


Glazing:
 4/0.76/4-12-4-15-4/0.76/4
 $R_w = 43$ dB
 $R_w + C = 42$ dB
 $R_w + C_{tr} = 39$ dB

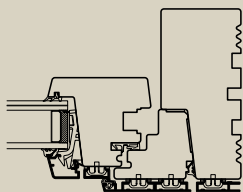
VELFAC 100 - The sound reduction values are based on a VELFAC 134 turn and tilt balcony door.



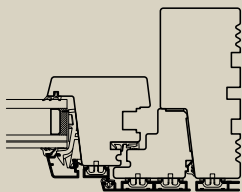
Glazing: 4-24-4
 $R_w = 33$ dB
 $R_w + C = 31$ dB
 $R_w + C_{tr} = 28$ dB



Glazing: 6-22-4
 $R_w = 36$ dB
 $R_w + C = 34$ dB
 $R_w + C_{tr} = 31$ dB



Glazing: 4-22-3/0.38/3
 $R_w = 36$ dB
 $R_w + C = 35$ dB
 $R_w + C_{tr} = 31$ dB



Glazing: 4/0.76/4-18-6
 $R_w = 38$ dB
 $R_w + C = 37$ dB
 $R_w + C_{tr} = 34$ dB

Sound reduction terms. The R_w -value indicates the number of decibels by which a window will reduce apparent noise.

$R_w + C$ is an adjustment factor to account for high frequency noise sources e.g. living activities (talking, music, radio, TV), railway traffic at medium to high speed, road traffic exceeding 80 kmh, or a jet aircraft.

$R_w + C_{tr}$ is an adjustment factor to account for low frequency noise sources e.g. urban road traffic or railway traffic at low speeds.



Test Information

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Test information. Millions of VELFAC windows are installed across Europe and thousands of people test them every day. Despite our highly successful track record, we maintain a demanding testing programme to ensure our windows continue to satisfy all necessary regulatory standards.

Testing institutions are looking over our shoulder. VELFAC windows have been tested by Europe's most rigorous standards agencies, which have analysed all aspects of window design and performance.

The VELFAC products have been tested and classified by:

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

At VELFAC, our strategy is one of continuous product assessment and improvement, comprising an ongoing review of system components and latest technologies. We know that national standards are also continually reassessed, and we are committed to not only meet but also exceed all the latest requirements. In addition, we fully support the move toward European standards, a global approach which will result in further stringent evaluation of the VELFAC product range.

Standards are constantly developing. As a result, individual VELFAC product specifications may change as products are reviewed and improved, and as standards evolve. Make sure you have the most up to date performance specification by visiting www.VELFAC.co.uk or calling us on 01223 897100.

Note: Individual test results refer to specific types and size of window - please contact VELFAC if you have specific requirements.

Test Information - General 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 and BS6375-2.

VELFAC 200 - DGU

Property	Test / Classification standard	Result and classification
Vertical load	prEN 947-1 (EN 14608) / BS EN 13115	Load 400 N - Class 2
Static torsion	prEN 948-1 (EN 14609) / BS EN 13115	250 N - Class 2
Operating forces	EN 12046-1 / BS EN 13115	Mobility 1.5/2.5 Nm opening/closing - Class 1
	BS EN 1191 / prEN 12400	Repeated open/close 10000 cycles - Class 2
Air permeability	BS EN 1026 / BS EN 12207	Air - Class 4 +900 Pa - 600 Pa
Water tightness	BS EN 1027 / BS EN 12208	1500 Pa - Class E1500
Wind resistance	BS EN 12211 / BS EN 12210	Wind - Class C3 ± 1200 Pa Static load ± 600 Pa ×50 Dynamic load ± 1800 Pa Safety load Max. deflection < 1/300H

Test Institute: SP, Boraas

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.

Test Information - Thermal properties

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 _w -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*	1.40
	double-glazed window - 4-16-4 with 2 low-e and argon	1.36
	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

Test Information - Fire windows

Fire windows. As with fire doors, 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 notice, 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.	Patio door - E30 Windows - E60 Ventilated fire panel - EI60

Test Institute: SP, Boraas

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

Test Information - Sound reduction

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 on page 70 and of VELFAC 200 and VELFAC 100 sound reducing windows on page 71.

Property	Test / Classification standard	Result and classification
Sound measurement	BS EN ISO 140-3 / BS EN ISO 717-1	VELFAC 200 DGU: $R_w = 32 - 48\text{dB}$ VELFAC 200 ENERGY TGU: $R_w = 33 - 43\text{dB}$ VELFAC 100 DGU: $R_w = 33 - 38\text{dB}$

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

Test Information - Safety fittings

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

Child safety. The espagnolette with child-lock and the standard restrictor have been tested separately. Both have 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 ⁽¹⁾	BS EN 14351-1 (equivalent to BS6375-2)	Load 350N, 1 minute - Passed
VELFAC 200 ENERGY TGU, Safety devices, CE marking ⁽²⁾	BS 6375-3	- Passed
Espagnolette with child-lock ⁽³⁾	NT CONS 018, SS 3587	As described above - Passed
Standard restrictor ⁽²⁾	NT CONS 018, SS 3587	As described above - Passed

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

Test Information - CWCT accreditation

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 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 an increased level of confidence in the performance of VELFAC 200 Plus within their own projects.

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

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 ± 2000 Pa - Passed Safety to ± 3000 Pa - Passed
Impact	BS 8200	Passed

Test Institute: Chiltern Dynamics, Buckinghamshire

Test Information - Resistance to forced entry (SBD)

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 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 window types have passed the PAS 24 annex 3 tests and are third party certified for Secured by Design:

VELFAC 200 DGU:

- sidehung opening light
- patio door (single leaf)
- fixed light
- tophung projecting light

VELFAC 200 ENERGY TGU:

- sidehung opening light
- patio door (single leaf)
- fixed light
- tophung projecting light



The following doors have passed the PAS 23-1 and PAS 24-1 tests and are third party certified for Secured by Design:

VELFAC 500:

- Aluminium Security Door

VELFAC 600:

- Wood/aluminium Security Door

Property	Test / Classification standard	Result and classification
Secured by Design ⁽¹⁾	PAS 24, BS6375-1, 6375-2, 6375-3	VELFAC 200 DGU - Passed
Secured by Design ⁽²⁾	PAS 24, BS6375-1, 6375-2, 6375-3	VELFAC 200 ENERGY TGU - Passed

Test Institute: ⁽¹⁾Chiltern Dynamics and ⁽²⁾BM Trada

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

Property	Test / Classification standard	Result and classification
Secured by Design	PAS 23-1: 1999 and PAS 24-1: 2007 + 2009	VELFAC 500 - Passed VELFAC 600 - Passed

Test Institute: Chiltern Dynamics, Buckinghamshire

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

Reference Projects

Project name: Leonard Street, London

Project type: Luxury Apartments

Architect: Allford Hall Monaghan Morris

Developer: London Square



Reference Projects

Project name: The Woodland Trust HQ, Grantham

Project type: Offices

Architect: Feilden Clegg Bradley Architects

Main Contractor: B&K Building services Ltd



Project name: Washington Primary Care Centre
Project type: Primary Care Centre
Architect: P & H S Architects
Main Contractor: Laing O'Rourke Northern Ltd



Reference Projects

Project name: Oxford Brookes University

Project type: Student Accommodation & Social Hub

Architect: GSS Architecture

Main Contractor: Leadbitter



Project name: Winchelsea Road, Brent
Project type: Housing
Architect: Shepherd Epstein Hunter
Main Contractor: Bouygues U.K.



Reference Projects

Project name: Pimlico Academy, Westminster

Project type: Specialist Visual & Performing Arts, and History Academy

Architect: Architecture PLB

Main Contractor: Bouygues UK



Project name: Regatta Court, Exmouth Dock
Project type: Housing
Developer: Eagle One



Reference Projects

Project name: Holy Trinity School, Barnsley

project type: Education

Architect: Allford Hall Monaghan Morris

Main Contractor: Laing O'Rourke



Project name: Waingels College, Woodley, Reading

Project type: Education

Architect: Sheppard Robson

Main Contractor: Willmott Dixon



Reference Projects

Project name: Great Kneighton, Cambridge

Project type: Housing

Developer: Countryside Properties



Project name: Great Kneighton, Cambridge
Project type: Housing
Developer: Countryside Properties



Reference Projects

Project: Typical low rise social housing refurbishment project with new VELFAC windows.





Official Police Security Initiative



The **Wood Window Alliance**



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