minimal windows®



MAXIMA VIEW









The frameless sliding and fixed window system Keller minimal windows® captivates by slim profile geometry and flush-fitted floors, ceiling and walls installation. It creates a seamless transition from inside to outdoors.

The living spaces thus created enjoy maximum incidence of light.

Architects, planners and clients can enjoy the wealth of design opportunities offered by this premium modular system.

Our engineers pay the closest attention to the finest details of design and perfection.

We use the highest-quality materials, state-of-the-art production processes, innovative ideas and the valuable craft skills of our employees.











DESIGN

Frameless

The frame profile is pared down to a minimum dimension to allow seamless integration into the floor, ceiling and walls. All you see are the slender leaf profiles. A glass proportion of up to 98 % guarantees unhindered incidence of light.

#Large-scale

Sliding doors up to 18 m² and fixed windows of up to >18 m² can be achieved. The maximum overall height for sliding doors is up to 6 m.

Modular

The huge variety of practical configuration variants covers all requirements. You can have up to five-track sliding systems in combination with fixed lights or interior / exterior corners with no distracting posts.

Individual

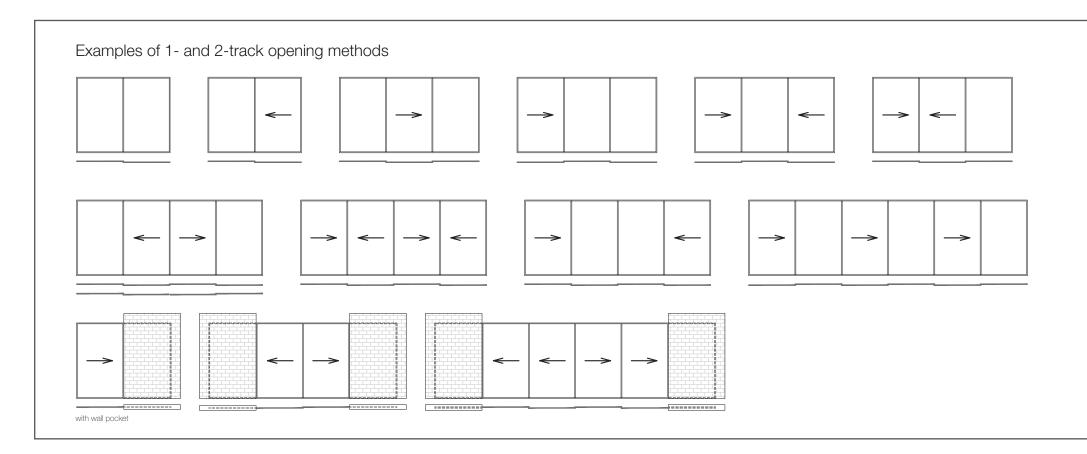
Choose from an extensive selection of RAL or anodised colours and stainless steel finish. The minimalistic aluminium profiles can thus be optimally and individually matched to the property. Glass facades can be created to suit any environment.













DESIGN

Arrangement variants

Examples of 3- and 4-track opening methods \leftarrow **—** \leftarrow Combine any number of sliding and fixed elements. Alternating and / or symmetrical.

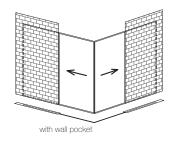


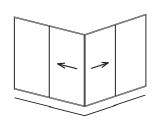


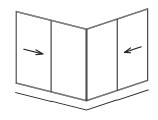
DESIGN

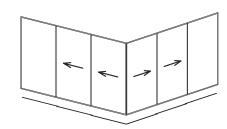
Arrangement variants

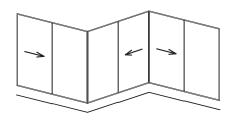
Internal and external post-free corners



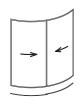


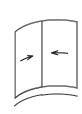


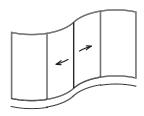


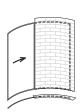


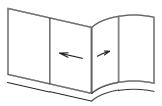
Combination of straight and curved fixed and sliding windows

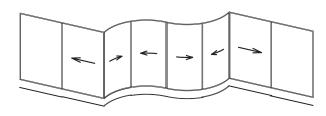








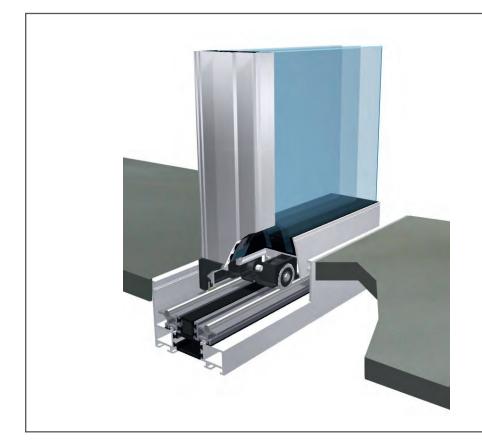












Stainless steel sliding rail

The stainless steel sliding rail recessed into the lower frame profile guarantees easy-action, silent opening and closing of the transparent elements.

#Roller carriage

The self-centring, integrated roller carriage is concealed in the lower profile of the sliding leaf.
High-quality stainless steel rollers ensure high load-stability and easy action in daily use for leaf weights of anything up to 1500 kg.





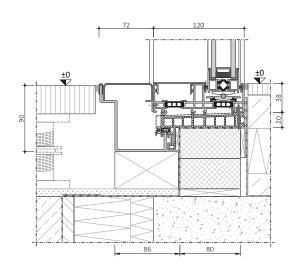


Illustration shows a possible design variant

Fitted flush to floor

The outer frame can be recessed around the whole perimeter into the walls, the ceiling and the floor. It creates a threshold-free transition from indoors to out.

The floor profile with the integrated stainless steel sliding rail is on a level with the floor, easy to care for and maintenance-free.

Drainage

Controlled drainage is achieved via a specially-designed system-integrated PVC hollow chamber drainage profile below the aluminium frame or optionally via a concealed system drainage gutter with stainless steel cover. The drainage profile has locating grooves for the EPDM film connection.









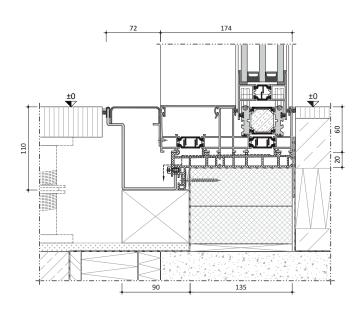


Illustration shows a possible design variant

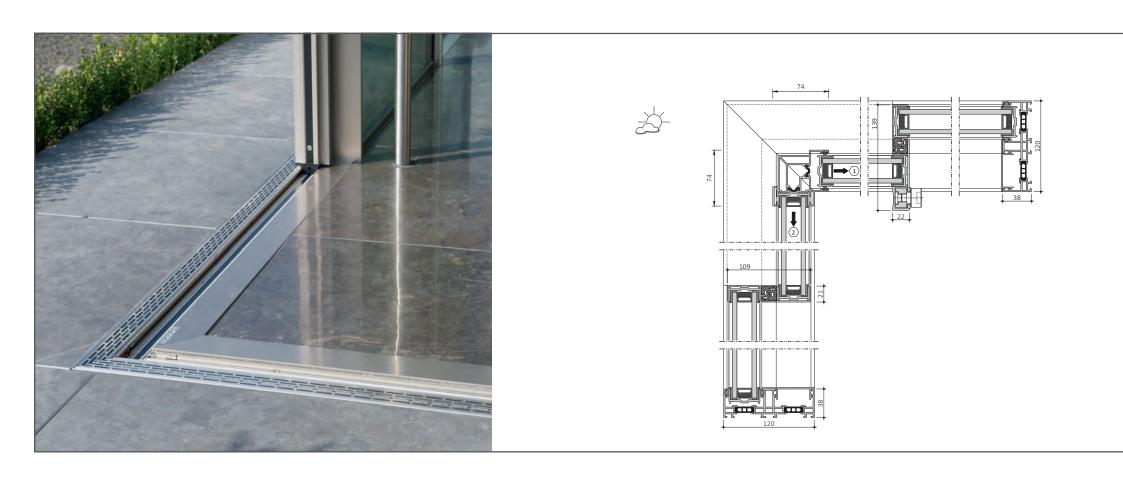
Barrier-free

The use of the flush leveled minimal windows® freeway sliding rail guarantees accessibility entirely without thresholds. Thanks to the outer frame perfectly integrated in the floor and the sliding rail elevated precisely to floor level, there is no annoying floor depression. The level installation makes for a seamless transition from indoors to outdoors.

The barrier-free design offers an obstacle-free, virtually even transition that differs markedly from conventional systems with surfacemounted door frames or deep thresholds.

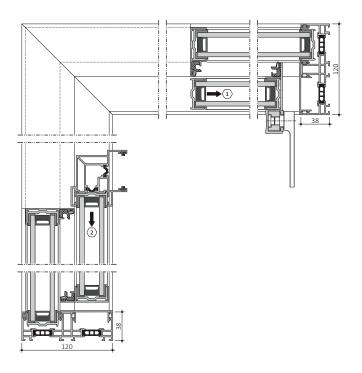
The flush-with-the-floor system variants have been developed for both minimal windows® product lines.











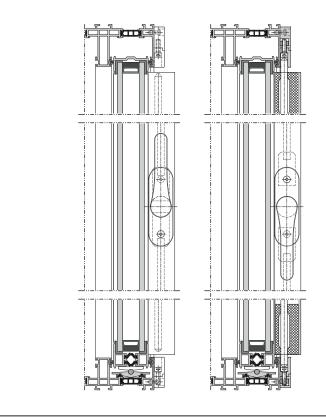
Corner-post-free

Architecture needs space and flexibility. Keller minimal windows® offer both in terms of configuration options and connection flexibility.

The design sliding window system allows 1- until 5-track sliding and fixed window installations, uninterrupted inside and outside corner solutions with no posts and concealed pocket wall solutions.

Illustration shows a possible design variant





Manual locking

The multipoint locking is concealed inside the handle, double vent or junction profile of the sliding leaf. Actuation takes place via an elegant design lever with or without cylinder lock.



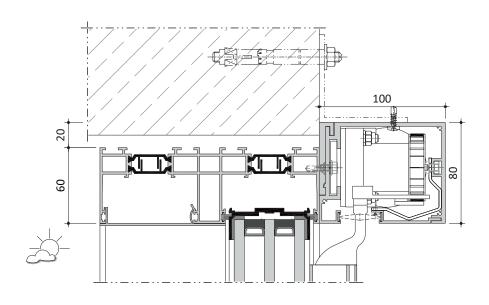
Illustration shows a possible design variant

a selection of finishing designs



Typ1a: E6/C35 anodize black



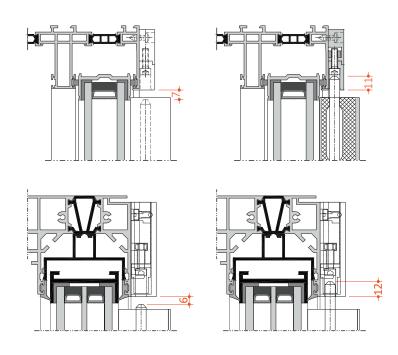


Motors / E-lock

According to the individual system configuration, concealed electric drives and locks can be used to increase operating comfort. Automatic locking (Remote Control, home automation adaptation) and manual locking options (deadman-lock via wall switch) are available. A single motor with toothbelt can operate several sliding leaves with a combined weight of up to 2400 kg silently.

This allows the telescopic-opening of wide expanses of glass façades.



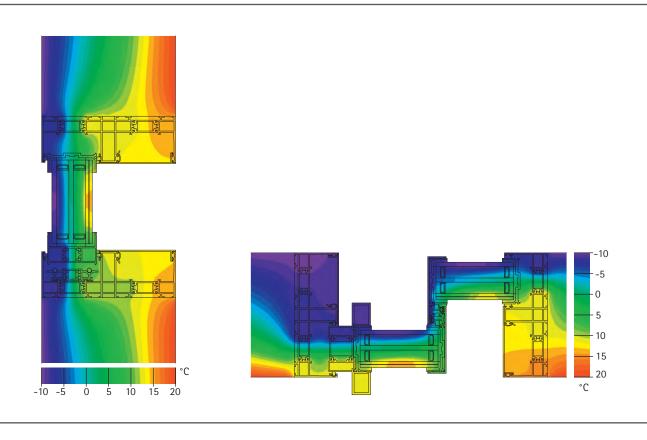


Security

The multi-point locking system offers burglar resistance and is approved according to burglary protection class RC 2 (RC 3 by NGS). For added security the system can be fitted with an integrated opening and locking monitoring and connected to standard external monitoring systems.







Energy

The premium

Keller minimal windows®4+,

NG S5 & NG S6 series
for triple glazing has uninterrupted thermal insulation.

These systems are ideal for passive house construction when using high-quality insulation glazing.







Certification

The quality of or systems meets the highest requirements

"Made in Luxembourg" and guarantees maximum protection against driving rain, wind loads, air permeability, noise penetration. All new designs and systems meet high quality standards and correspond to the latest state of the art techniques.





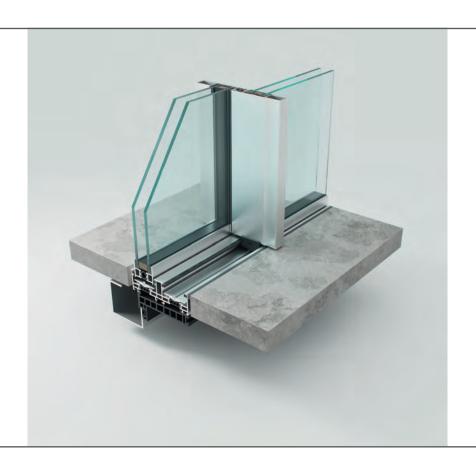






PRODUCT

minimal windows®

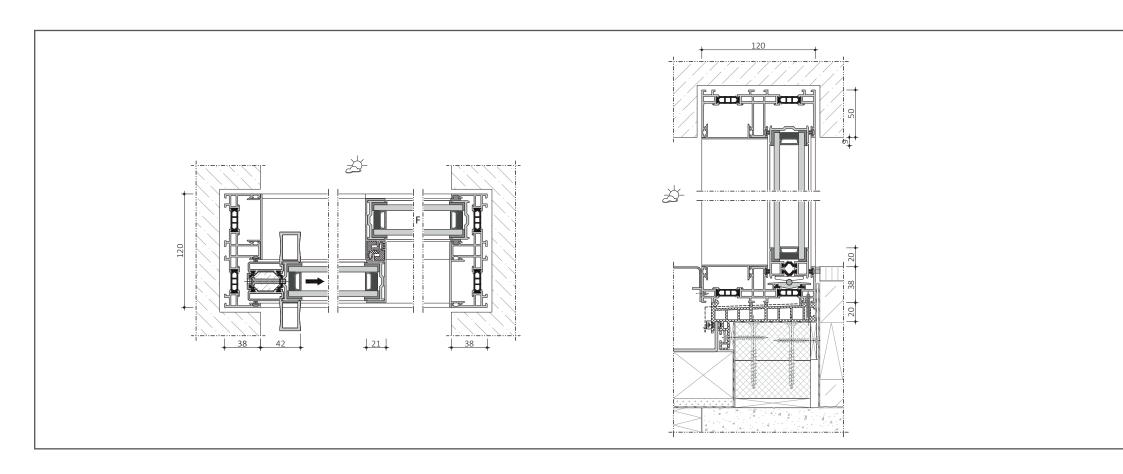


minimal windows®

Keller minimal windows® is a practically frameless, extremely easy-action sliding window system with a minimalistic facing width of the leaf profile of only 21 mm.

The system features double insulation glazing in thermal separated aluminium frame profiles.





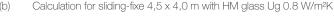


PRODUCT

minimal windows®

Facing width from centre point	21 mm
Maximum leaf size	up to 8,5 m ² / fixed light up to 18 m ²
Maximum leaf height	4 m
Maximum leaf weight	500 kg
Glass thickness	26 to 34 mm (insulating double glazing or special glass types)
Thermal transmission coefficient	$U_{\rm w} \geq$ 1,30 W/m²K (a) $U_{\rm w} >$ 1,1 W/m²K (b)
Motorisation	up to 2.400 kg total weight (with one motor and combined leaves)
Barrier-free accessibility	DIN 18040-1, DIN 18040-2
Air permeability	up to class 4 according to EN 12207
Driving rain tightness	up to class 7A according to EN 12208
Resistance to wind load	up to class C4/B5 according to EN 12210
Sound insulation	up to 39 dB achievable
Resistance to burglary	up to RC 2 according to EN 1627

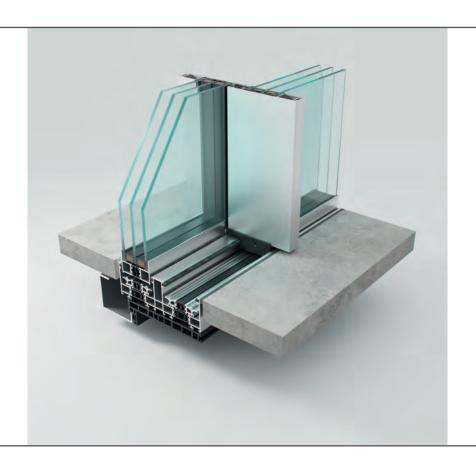








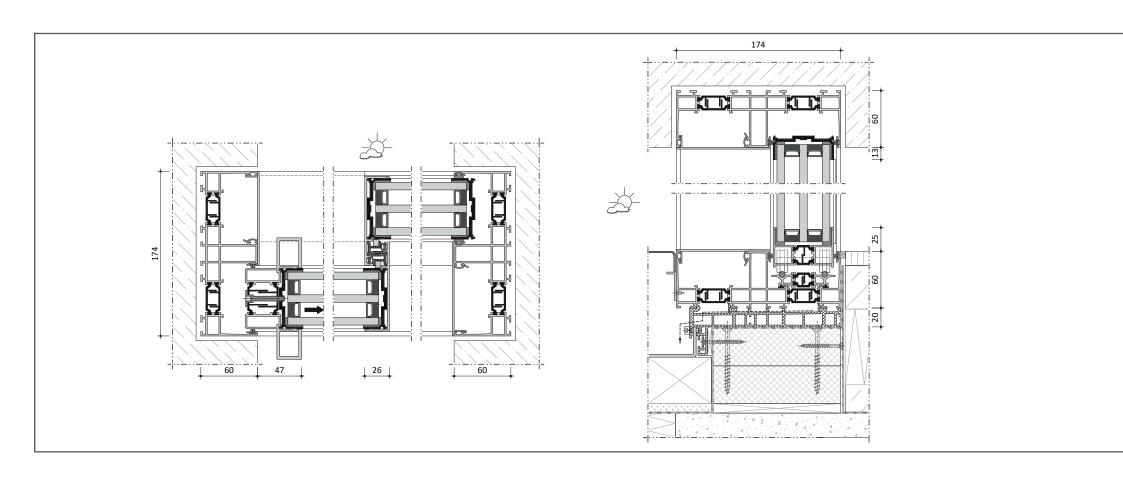
minimal windows®4+



minimal windows®4+

The premium version of the triple-glazed design sliding window is the most highly insulated variant and is the perfect solution for the passive house area. With high-quality insulated glass pane it is possible to achieve a U_w value of ≥ 0.70 W/m²K.







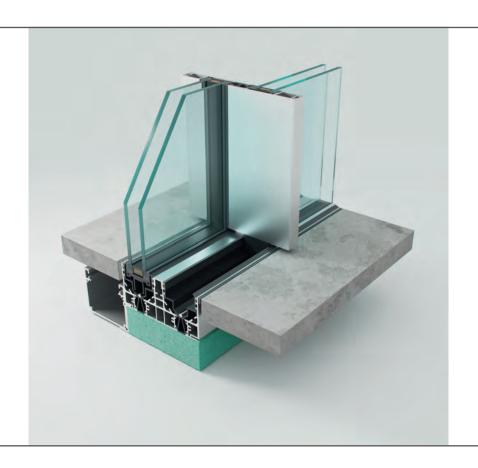
minimal windows®4+

Facing width from centre point	26 or 34 mm
Maximum leaf size	up to 12 m² / fixed light up to 18 m²
Maximum leaf height	4,5 m
Maximum leaf weight	1.000 kg
Glass thickness	50 to 56 mm (triple insulation glass or special glass types)
Thermal transmission coefficient	$U_{\rm w} \geq$ 1,0 W/m ² K (a) $U_{\rm w} >$ 0,7 W/m ² K (b)
Motorisation	up to 2.400 kg total weight (with one motor and combined leaves)
Barrier-free accessibility	DIN 18040-1, DIN 18040-2
Air permeability	up to class 4 according to EN 12207
Driving rain tightness	up to class 8A according to EN 12208
Resistance to wind load	up to class C5 according to EN 12210
Sound insulation	up to 45 dB achievable
Resistance to burglary	up to RC 2 according to EN 1627
	 (a) Calculation for sliding-fixe 6,0 x 4,5 m with glass Ug 0.8 W/m²K (b) Calculation for sliding-fixe 6,0 x 4,5 m with glass Ug 0.5 W/m²K





minimal windows® - NG S4



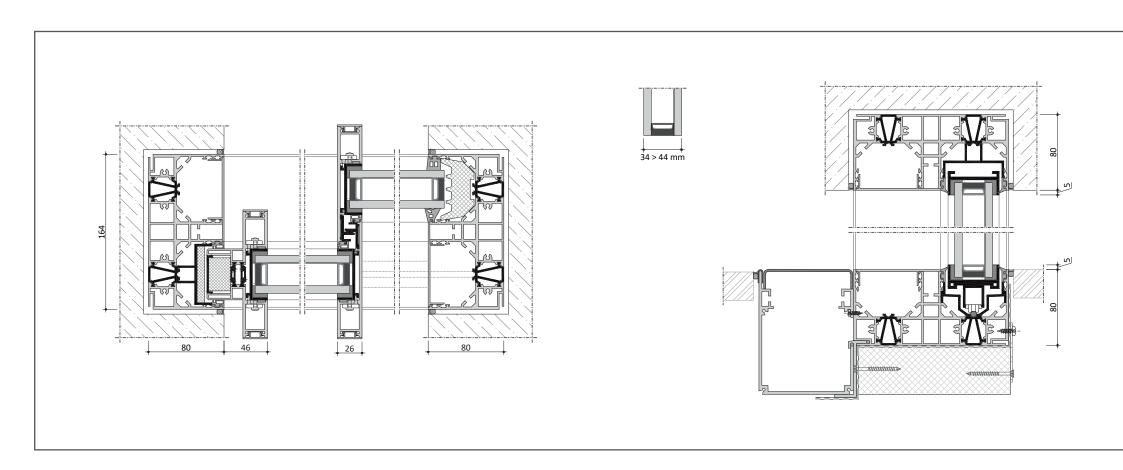
minimal windows® NG S4

The revolutionary redesign of the minimal windows® **Next Generation Sliding** frame system marks a significant milestone in the development of contemporary glazing systems. A key focus of this innovation is to standardise the application for different glazing parameters.

The result of these efforts is a seamless integration of four series consolidations into one system with a uniform and well thought-out design. This progress enables even more flexible and efficient solutions to be realised in modern architecture.

NG S4 stands for maximum glass thickness and indicates that the profile can accommodate a glass thickness of 34 mm to **4**4 mm.







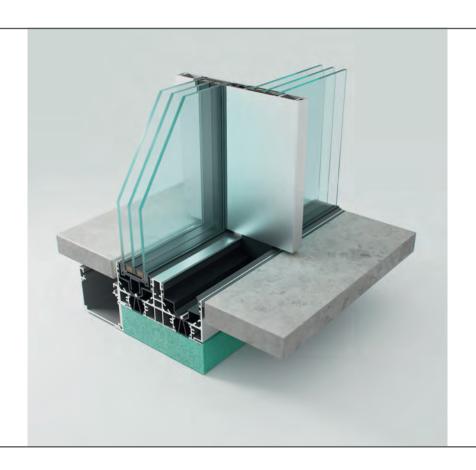
minimal windows® - NG S4

Facing width from centre point	26 mm
Maximum sliding leaf size	18 m²
Maximum sliding leaf height	6 m
Maximum sliding leaf weight	1.500 kg
Glass thickness	34 to 44 mm
Thermal transmission coefficient	$U_{\rm w} \ge 1,15 \ {\rm W/m^2K}$ (a) $U_{\rm w} > 0.9 \ {\rm W/m^2K}$ (b)
Motorisation	up to 2.400 kg total weight (with one motor and combined leaves)
Barrier-free accessibility	DIN 18040-1, DIN 18040-2
Air permeability	up to class 4 according to EN 12207 (c)
Driving rain tightness	up to class 8A according to EN 12208 (d)
Resistance to wind load	up to class C5 according to EN 12210 (c)
Sound insulation	up to 44 dB achievable (c)
Resistance to burglary	up to RC 3 according to EN 1627 (c) & PAS 24
	(a) Theoretical R&D calculation for sliding-fixe $6.0 \times 6.0 \text{ m}$ with glass U_g 1,0 W/m²K (b) Theoretical R&D calculation for sliding-fixe $4.0 \times 6.0 \text{ m}$ with glass U_g 0,6 W/m²K (c) Target value, waiting for official testing (d) Target value for drainage type 1 (target value for drainage type 2 & 3 >8A)





minimal windows® - NG S5



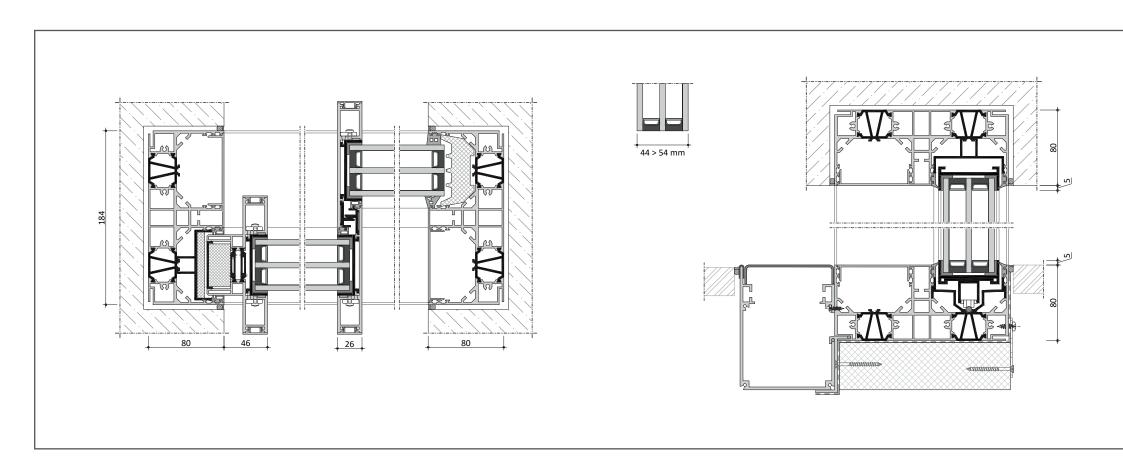
minimal windows® NG S5

The revolutionary redesign of the minimal windows® **Next Generation Sliding** frame system marks a significant milestone in the development of contemporary glazing systems. A key focus of this innovation is to standardise the application for different glazing parameters.

The result of these efforts is a seamless integration of four series consolidations into one system with a uniform and well thought-out design. This progress enables even more flexible and efficient solutions to be realised in modern architecture.

NG S5 stands for maximum glass thickness and indicates that the profile can accommodate a glass thickness of 44 mm to **5**4 mm.







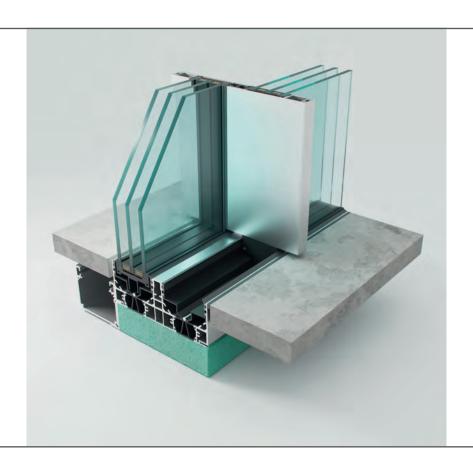
minimal windows® - NG S5

Facing width from centre point	26 mm
Maximum sliding leaf size	18 m²
Maximum sliding leaf height	6 m
Maximum sliding leaf weight	1.500 kg
Glass thickness	44 to 54 mm
Thermal transmission coefficient	$U_{\rm w} \ge 0.95 \text{W/m}^2 \text{K}$ (a) $U_{\rm w} > 0.75 \text{W/m}^2 \text{K}$ (b)
Motorisation	up to 2.400 kg total weight (with one motor and combined leaves)
Barrier-free accessibility	DIN 18040-1, DIN 18040-2
Air permeability	up to class 4 according to EN 12207 (c)
Driving rain tightness	up to class 8A according to EN 12208 (d)
Resistance to wind load	up to class C5 according to EN 12210 (c)
Sound insulation	up to 45 dB achievable (c)
Resistance to burglary	up to RC 3 according to EN 1627 (c) & PAS 24
	(a) Theoretical R&D calculation for sliding-fixe $6.0 \times 6.0 \text{ m}$ with glass $U_g \ 0.8 \text{ W/m}^2\text{K}$ (b) Theoretical R&D calculation for sliding-fixe $6.0 \times 6.0 \text{ m}$ with glass $U_g \ 0.6 \text{ W/m}^2\text{K}$ (c) Target value, waiting for official testing (d) Target value for drainage type 1 (target value for drainage type 2 & 3 >8A)





minimal windows® - NG S6



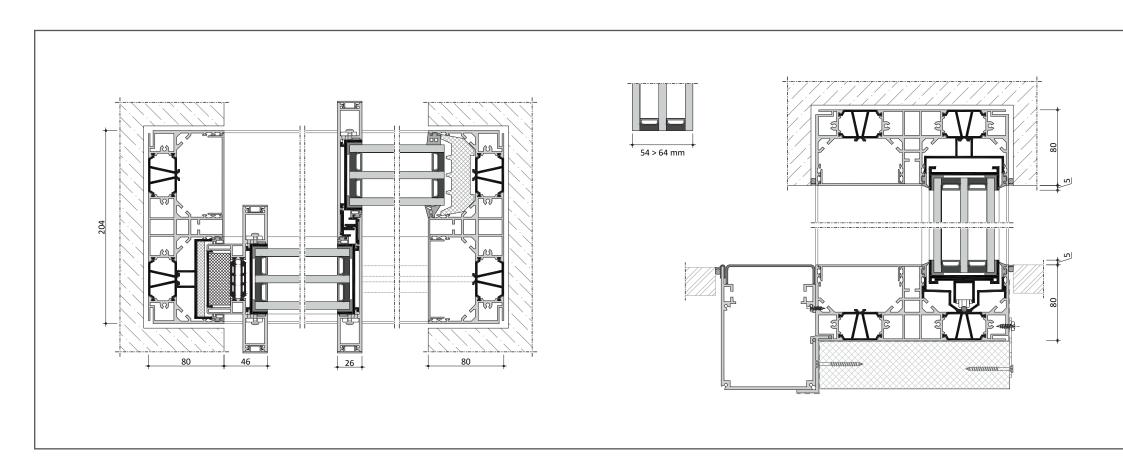
minimal windows® NG S6

The revolutionary redesign of the minimal windows® **Next Generation Sliding** frame system marks a significant milestone in the development of contemporary glazing systems. A key focus of this innovation is to standardise the application for different glazing parameters.

The result of these efforts is a seamless integration of four series consolidations into one system with a uniform and well thought-out design. This progress enables even more flexible and efficient solutions to be realised in modern architecture.

NG S6 stands for maximum glass thickness and indicates that the profile can accommodate a glass thickness of 54 mm to **6**4 mm.









minimal windows® - NG S6

Facing width from centre point	26 mm
Maximum sliding leaf size	18 m²
Maximum sliding leaf height	6 m
Maximum sliding leaf weight	1.500 kg
Glass thickness	54 to 64 mm
Thermal transmission coefficient	$U_{\rm w} \ge 0.90 \ {\rm W/m^2K} \ (a) \ \ U_{\rm w} \ge 0.65 \ {\rm W/m^2K} \ (b)$
Motorisation	up to 2.400 kg total weight (with one motor and combined leaves)
Barrier-free accessibility	DIN 18040-1, DIN 18040-2
Air permeability	up to class 4 according to EN 12207 (c)
Driving rain tightness	up to class 8A according to EN 12208 (d)
Resistance to wind load	up to class C5 according to EN 12210 (c)
Sound insulation	up to 46 dB achievable (c)
Resistance to burglary	up to RC 3 according to EN 1627 (c) & PAS 24
	(a) Theoretical R&D calculation for sliding-fixe $6.0 \times 6.0 \text{ m}$ with glass $U_g \text{ 0,8 W/m}^2\text{K}$ (b) Theoretical R&D calculation for sliding-fixe $6.0 \times 6.0 \text{ m}$ with glass $U_g \text{ 0,5 W/m}^2\text{K}$ (c) Target value, waiting for official testing (d) Target value for drainage type 1 (target value for drainage type 2 & 3 >8A)





minimal windows® - highline

minimal windows® highline

The innovative premium glass façade system combines aesthetics with outstanding performance features. The slender and frameless glass façades enhance the pure minimalism of current architecture.

The glass façade between two structural floors comprises thermally insulated, concealed aluminium frame profiles and is ideal wherever minimum facing width and maximum glazing height is desired.

The flush-mounted or symmetrically alternating offset planes of the glass façade can be combined with ultra-slender design sliding doors to give the perfect solution for high-rise residential projects and business premises. Available as double- or triple glazing versions.

Stability of the sliding system tested under extreme wind loads with a nominal load of 2,000 Pa (approx. 200 km/h) and a peak load of 3,000 Pa (approx. 250 km/h; with brief gusts of wind) in accordance with EN12210 and the classification C4/B5.

We distinguish 3 different design variants:

Type 1 - Glass-To-Glass, flush-surface glass façade with vertical 10 mm butt joint and SG bonding.

Type 2 - Semi-SG, flush-surface glass façade with vertical 20 mm butt joint outside and 22 mm design static profiles inside.

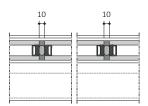
Type 3 - Cover-Cap-Look, flush-surface glass façade with 22/34/36 mm exterior cover in different design variants and vertical 22/34/36 mm design static profiles inside.

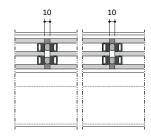


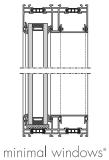
TYP 1 Glass-To-Glass

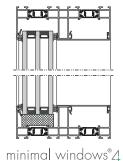
Vertical 10 mm butt joint with SG bonding

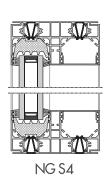
System glass façade between two floors made from insulated, concealed aluminium frame profiles and post-free glass-to-glass butt jointed implementation. The Glass-To-Glass variant (type 1) is designed as a **flush-surface glass façade**. Design sliding doors can be optionally fitted in the second inner track.

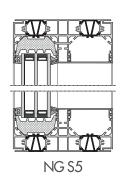


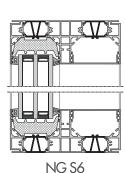
















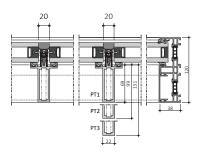
TYP 2 Semi-SG

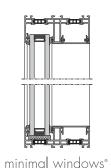
minimal windows® - highline

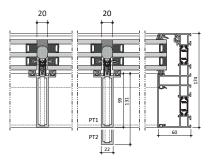
Vertical 20 mm butt join outside, 22 mm static post inside

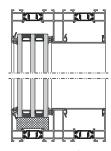
System glass façade between two floors made from insulated, concealed aluminium frame profiles.

Minimalistic facing width of the vertical design post profiles of only 22 mm. The Semi-SG variant (type 2) is designed as a **flush-surface glass** façade in 2 tracks. Design sliding doors can be optionally fitted in the second inner track.









minimal windows®4

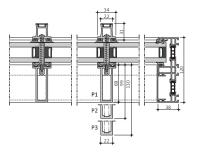


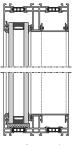
TYP 3 Cover-Cap-Look

Exterior cover cap, static post inside

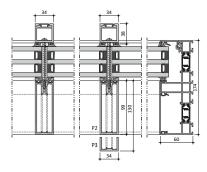
System glass façade between two floors made from insulated, concealed aluminium frame profiles.

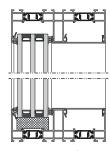
Minimalistic facing width of the vertical design post profiles of only 22 / 34 mm. The Cover-Cap-Look (Type 3) is designed as a **flush-surface glass façade** in 2 tracks. Design sliding doors can be optionally fitted in the inner track.





minimal windows®





minimal windows®4





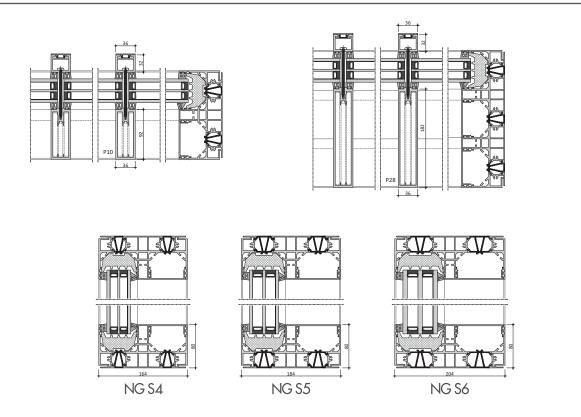
TYP 3 Cover-Cap-Look

minimal windows® - highline

Exterior cover cap, static post inside

System glass façade between two floors made from insulated, concealed aluminium frame profiles.

Minimalistic facing width of the vertical design post profiles of only 36 mm. The Cover-Cap-Look (Type 3) is designed as a **flush-surface glass façade** in 2/3/... tracks. Design sliding doors can be optionally fitted in the inner track.











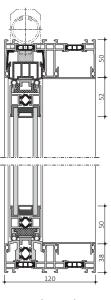
minimal windows® - pivot

#Keller minimal windows® pivot

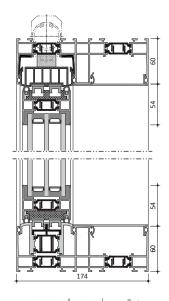
Keller minimal windows® - pivot are inward or outward-opening side-hung doors with pivot technology and the same minimalistic frame proportions.

This further highlight of the minimal windows® product range enables a further opening variant in the almost frameless design, which can be incorporated brilliantly in 8 different installation types. Where installation space is tight, the innovative rotary leaf hardware also allows many different adjustment options for positioning the rotary leaf axis.

A great many of the largest sliding elements can be used. A virtually unlimited combination of sliding and pivoting leaf elements is designed in different tracks.



minimal windows*

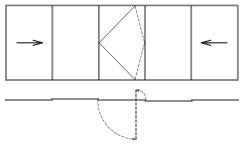


minimal windows 4

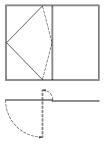


Arrangement variants

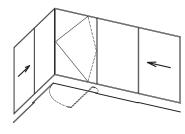
Opening outwards or inwards



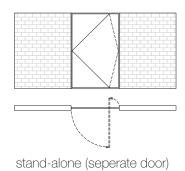
alternating, 3 rails (or more)



2-part front door, 2 rails



open corner, 2 rails (or more)



Combine any number of sliding and fixed elements.

Alternating and / or symmetrical.





minimal windows® - pivot

	minimal windows® pivot	minimal windows®4+ pivot
Maximum leaf dimensions	W = 1.800 mm x H = 3.000 mm	W = 1.800 mm x H = 3.000 mm
Maximum leaf weight	Wt = 250 kg	Wt = 350 kg
Minimum distance rotary leaf axis <>stop	150 mm	150 mm
Maximum distance rotary leaf axis <>stop	½ leaf width	½ leaf width
Horizontal adjustability of lower rotary bearing	+/- 3 mm	+/- 3 mm
Vertical adjustability of lower rotary bearing	+/- 3 mm	+/- 3 mm
Horizontal adjustability of upper rotary bearing	+/- 3 mm	+/- 3 mm
Vertical decoupling of upper rotary bearing<>leaf hinge part	Yes	Yes
Rotary leaf lock in 90° open position	Yes	Yes
Optional door closer and/or door opener, top	Yes	Yes
Barrier-free accessibility	DIN 18040-1, DIN 18040-2	DIN 18040-1, DIN 18040-2
Air permeability	up to class 4 according to EN 12207	up to class 4 according to EN 12207
Driving rain tightness	up to class 6A according to EN 12208	up to class 7A according to EN 12208
Resistance to wind load	up to class C2/B3 according to EN 12210	up to class C3/B4 according to EN 12210
Resistance to burglary	up to RC 2 according to EN 1627	up to RC 2 according to EN 1627











#Glazing

Keller minimal windows® can be equipped with high-quality double and triple insulating glass with thicknesses from 26 to 64 mm.

All partners of Keller minimal windows® determine the thermal insulation values of the sliding systems (U_W value) based on the insulation values of the glazing (U_g value) and the warm edge spacer (ψ value).

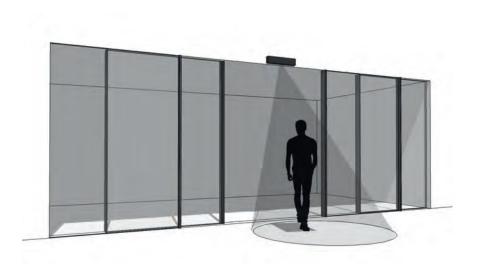
Glass types examples:

- P4A safety glass (anti-burglary glass)
- noise insulation glass
- bullet-resistant glass
- privacy protection glass with or without sandblasting
- decorative glass
- solid glass corners insulation glass
- glass with controllable transparency (privacy glass)









#Safety accessories

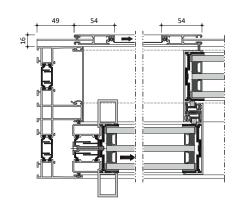
Innovative and reliable. Keller minimal windows® sliding systems are individually designed to customer preferences and installation circumstances. We therefore present a range of products and accessories to be able to offer intelligent and tailored solutions every time.

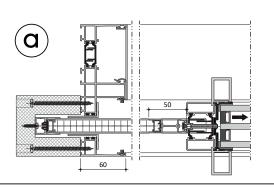
Products such as linear actuators, opening and locking monitors (magnetic contacts), opening and securing sensors, etc. complete our range of security accessories and offer enhanced safety.

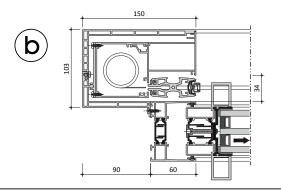


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Insect screens

Especially for large openings Keller minimal windows® offers system-integrated, tailor-made insect screens for easy and long-term protection.

Every installation is different. We use slender, sliding clamping frames with low mounting depth or insect screen that roll up vertically.

The almost-invisible screen is made of high-quality fabric which provides a practically unhindered view outdoors. The insect screen colour can be matched to the colour of the sliding leaf.

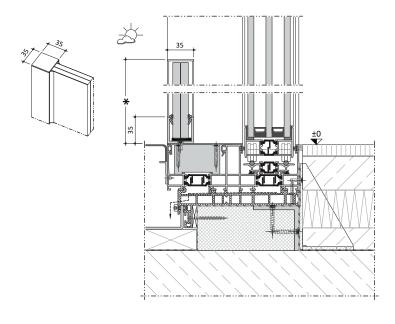
The Keller minimal windows® insect screen is discrete, stable and weatherproof.

NEW

- a) Plisse insect screen for minimal windows® and minimal windows®4+
- b) Rollo insect screen for minimal windows®4+ and NGS







#Glass balustrades*

Customer demands for light-flooded interiors have given us floor-to-ceiling windows. In many building situations this also requires elegantly-designed fall protection. Key factors in construction are strength, stability and suitability of materials. Keller minimal windows® glass balustrades meet the very highest quality and safety standards. Invisibly attached, they blend optimally into the overall architectural surroundings.

* Country-specific regulations should be observed







#Technology

Further information for architects and professional planners can be found in our minimal hub at

https://minimal-windows.com/

Requires prior registration





Keller minimal windows s.a. 38-40, route de Wilwerdange 9911 TROISVIERGES
Luxembourg
T +352 28 38 66 1
info@keller-minimal-windows.com

www.minimal-windows.com