



iku® windows - the intelligent self-cleaning glass facade Unitized system

iku® windows – the intelligent façade – is a complete façade system with an integrated self-cleaning function. This façade system offers all the benefits of using prefabricated facade elements: The production in the factory is a guarantee for precise manufacturing and quick installation on site.

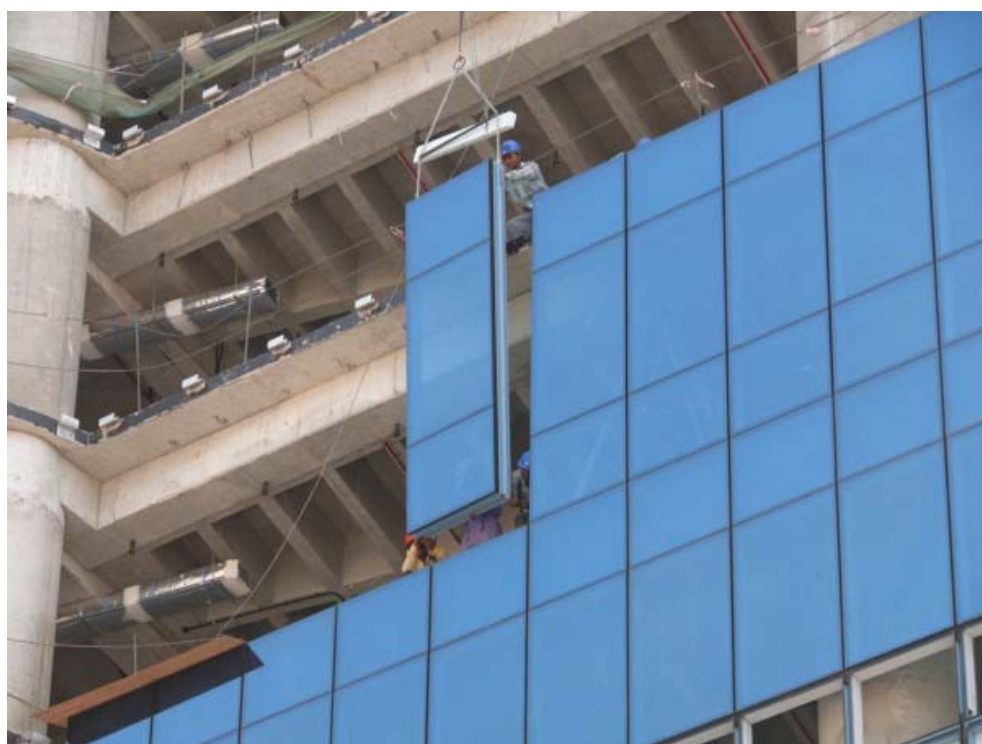
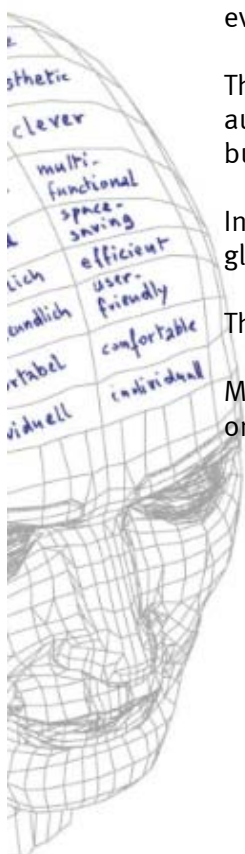
This system enables the changes of glass from inside and the integration of maintenance and evacuation units.

The system is directly connected to the water supply with detergent being added to the water automatically via mixer unit. Water and detergent are sprayed on to the façade at the touch of a button. Then the integrated wipers clean the façade automatically.

Individually it can be parameterised how much and how long water should be sprayed onto the glass facade, equally the frequency of the wiper movement can be decided.

The wipers are spring-loaded, which guarantees not only a perfect cleaning result.

Maximum system height is 60 m for one wiper. On taller buildings several systems are installed on top of one other.



Unique options:

Additional to self-cleaning mechanism systemized integration of

- maintenance & evacuation unit
- shading
- photovoltaic
- lighting
- advertisement

Highlights:

- Extremely efficient series production
- no silicone used for glazing
- glass changeable from inside
- minimum construction time
- easy integration of glass marble or aluminium panels

Benefits that pay off:

Convenience

- cleaning at the touch of a button
- clean facades in just a few hours (even high rise)
- no need for external cleaning contractors
- rainwater used for cleaning cycle
- free design for architects

Safety / Privacy

- safe cleaning of high glass facades
- risk-free change of glass from inside
- no breakage from building maintenance units
- protection of privacy
- no outside personnel looking into the building (espionage / break-ins)
- evacuation in case of disaster
- protection of the façade from fire and smog by increasing pressure of water spraying

Cost effectiveness

- extremely low operation costs
- high frequency of cleaning without additional costs
- one-off investment
- low maintenance
- cleaning of solar panels, in order not to lose efficiency in energy production



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Test values

Air permeability in accordance with NORM EN 12153

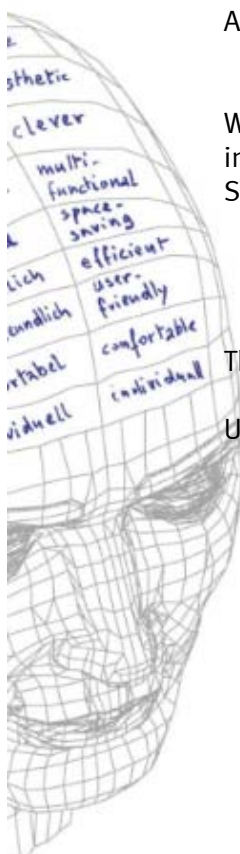
AE 1650
(pressure and suction)

Water-tightness to driving rain
in accordance with NORM EN 12155
Safety testing

RE 1650
3000 Pa: passed

Thermal transmission coefficient

$U_{cw} = 1,5 \text{ W/m}^2 \text{ K}$ for double glazing $U_g = 1,1 \text{ W/m}^2 \text{ K}$



For further details please refer to www.iku-windows.com

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Prefabrication of elements in individual sizes according to the specification

Production of the frames

1. Profiles are cut to length
2. Drilling and processing of profiles
3. Assembly of the profiles
4. Inserting the gaskets

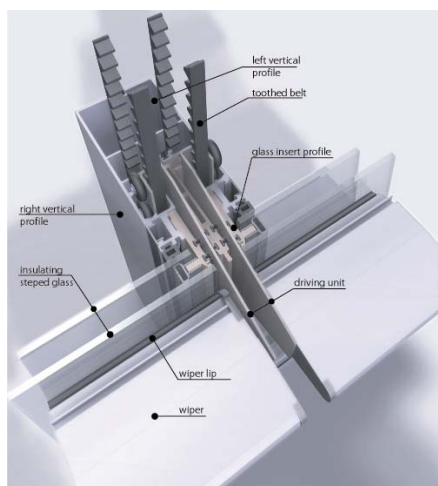
Glazing

1. Fitting of the glazing profiles into the glass
2. Glass is layed onto the frame
3. Glass elements are fixed with screws from the inside – without using silicone – makes glass changeable from inside
4. Finished elements are stored on transport units

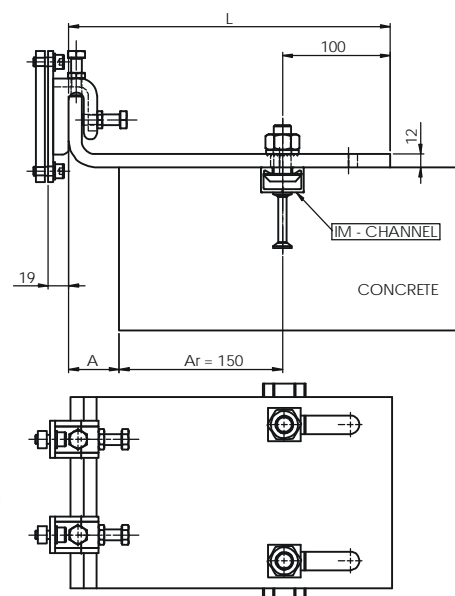
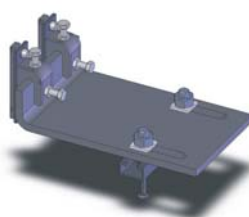
Installation

Integration of motor & driving unit and spraying profiles every 60 meters.

The wiper is running over the full height of appx. 60 meters. The belts carrying the wiper are running inside the vertical profiles.

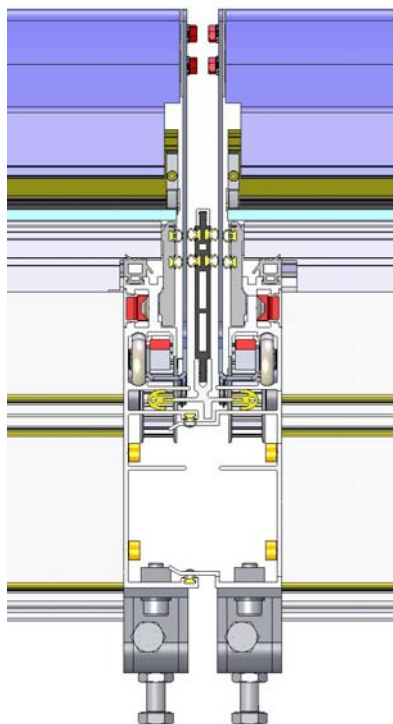
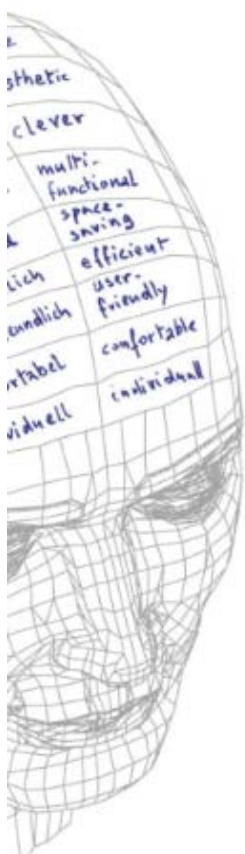


At each element a hook is fixed to hang the elements into the premounted brackets at the structure of the building

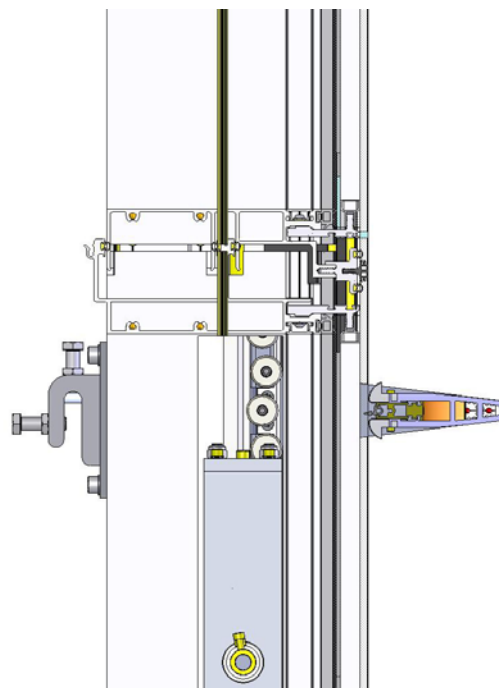


Detail of the installation of the brackets, which are cast in place in the structure of the building

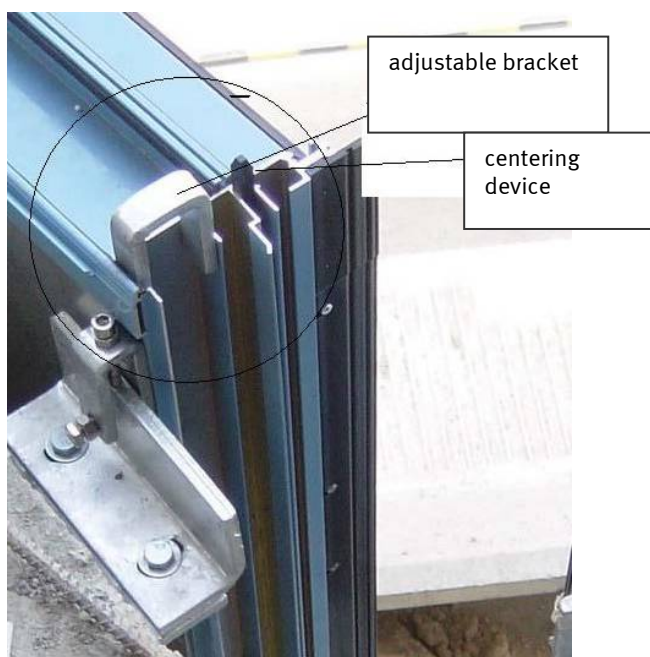
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Horizontal section:



Vertical section:



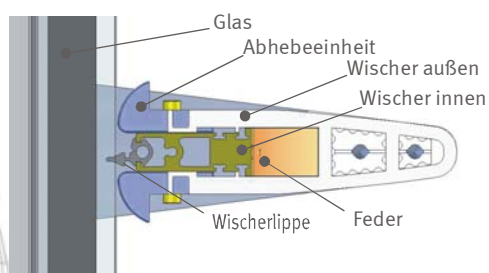
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According to the specification two wiper options are available

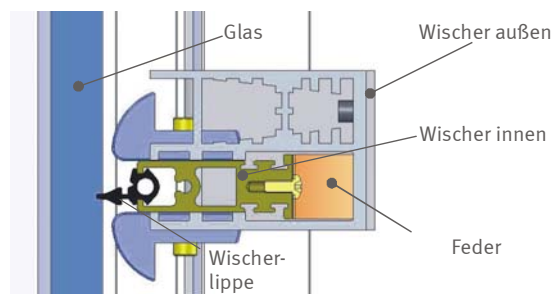
Minimum distance between glass surface and shading: **Design 1:** 110 mm

Design 2: 75 mm, this wiper design is bendable, therefore it can be applied to curved facades

Both wipers are flexible – they integrate a leaf spring to adapt perfectly to the surface of the glass



Wiper design 1

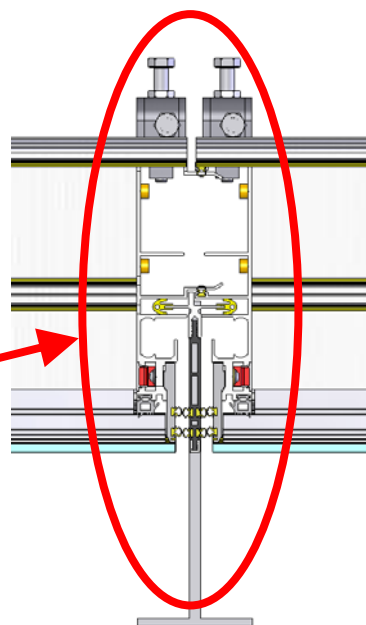


Wiper design 2

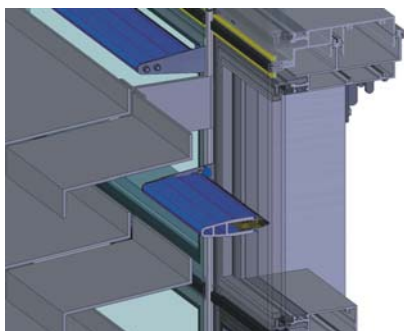
The various options

- Shading
- Photovoltaic
- Lighting
- Advertisement

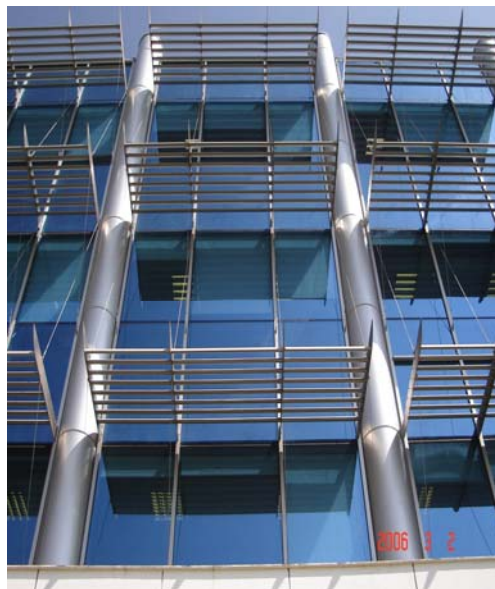
are integrated without disturbing the built in self cleaning mechanism. A systemized fixing unit for these options is part of the concept



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Detail: Integration of shading and wiper



Fixed / moveable louvre blinds

Shading, advertisement, lighting – the iku® windows built in self-cleaning mechanism remains undisturbed and ensures a clean facade – anytime – at the touch of a button

Photovoltaic panels



There is a huge potential for the production of clean energy by using the facade as a power station.

Solar or photovoltaic panels should be cleaned continuously.

Dirty solar panels reduce the efficiency in energy production up to 50%.