WINDOWS
AND TERRACE DOORS

# Vizus **Pasiv**

High energy efficiency class

*Window AT135 /  residential building, M. Tepića, Belgrade*

VIZUS

# Characteristics of design

Sustainable architecture inspired a variety of innovations. The Standard Passive house is one of the ways of creating the sustainable architecture. It is designed as a number of propositions and requirements used for designing and constructing of passive buildings with the aim of extreme reduction of energy consumption (not more than 15KWh by m2). In this sense a special sections of this standard concerns windows, according to which they must be glazed with triple thermal insulation glass, and the window sash thermal conductivity coefficient must not exceed 0.85W/m2K. Window system **Vizus AT135** has been developed in accordance with the mentioned propositions, which implied creation of a massive window system from the outset.

Even and simple surfaces of the windows on the external side facilitate unimpaired construction of RAL fitting details, where the façade cladding of the wall overlaps the window jamb thus providing additional seal of the wall and window joint. Immediately after placing AT135 on the market, the aluminum version **Vizus Pasiv VP106** was created. The outside appearance of both systems is identical, which allowed for construction of a single window detail of the external architecture while simultaneously making the interior distinction of the room use.

Systems **AT135 and VP106** are extensively used on the buildings expected to have high energy efficiency class rating in the energy passport of the building.

*Window AT135 / residential building, Užička, Belgrade*

# AT135 i VP106

The relationship between the structure and the environment has always intrigued the architectonic public. It was long considered that the environment itself can have a negative effect on a structure. However, in the recent past, due to the extreme increase of the population density and intensive industrial production, the negative impact can go both ways, which ultimately results in the reduction of natural resources, continuing increase of CO2 emissions on a global level and creation of the greenhouse effect.

The fact that in the developed countries, buildings consume half of the available energy, creating in the process a quarter of the total CO2, emissions gave rise to the formation of the concept of sustainable architecture, whose task is to facilitate creation of architectural structures which are in balance with the ecosystems.

The novelty in designing of architectural structures is a progressively pronounced requirement that the building is efficient, and at the same time, environmentally friendly. The architectural elements of such buildings must act in synergy towards the common goal: saving energy.

The window, as a facilitator of the most important relationship in architecture, the relationship of the exterior and interior, takes on an important role in this case. On the one hand it must meet certain requirements in terms of performances, while on the other hand it must remain an architectonic element which belongs to expression and esthetics of contemporary architecture.

Taking this task as a great challenge, primarily because of its innovativeness, but simultaneously as very significant in the human sense, Vizus developed two window systems which satisfy the demands of the sustainable architecture: **Vizus AT135 and Vizus 106.**

*Window AT135 / residential building, M. Tepića, Belgrade*

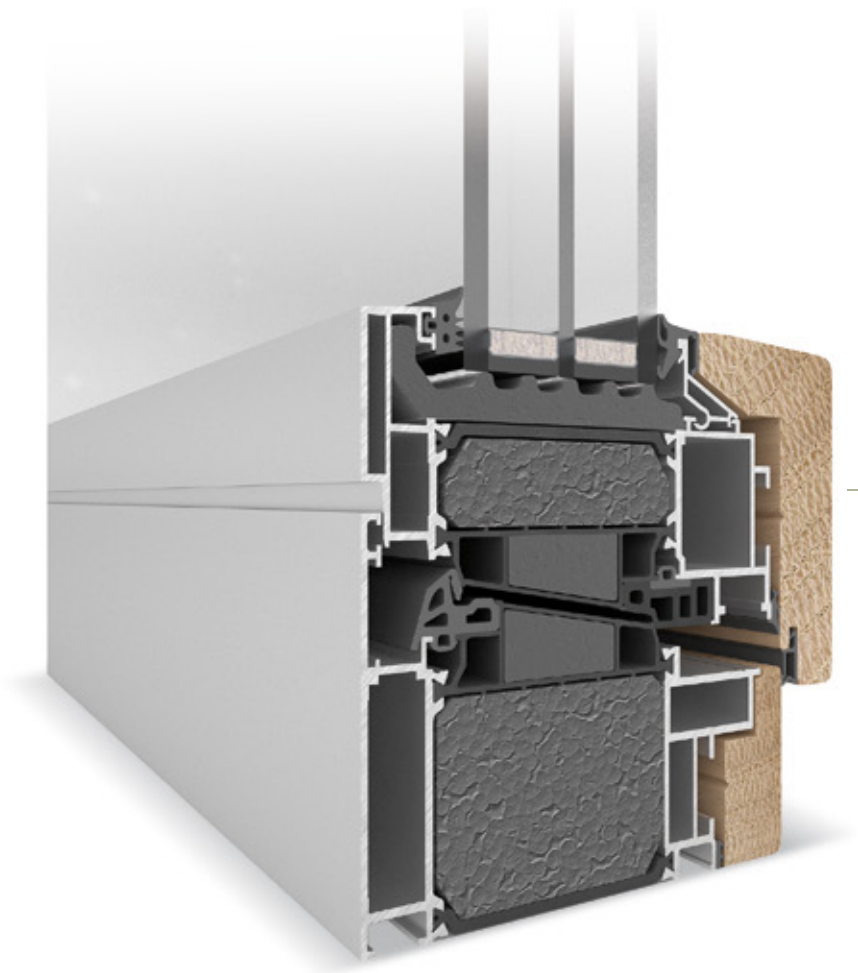
*Window AT135 /  residential building, M. Tepića, Belgrade*

# AT135

**Vizus AT135** is composite window system with inward opening, characterized by extremely pronounced resistant properties. As a response to the rigorous requirements of the principles of sustainable architecture, the performances of the window were enhanced to the maximum: thermal resistance, wind resistance, air, water and sound proofing. The realized thermal conductivity coefficient of the window sash, combined with the technological improvement in the production of glasses ranks AT135 among the latest generation of top performance thermally resistant window systems.

The resistant properties of the system are emphasized by the massive dimensions: basic frame thickness 116mm, sash thickness 135mm and total sash height 130mm. The hardware slots are set in the aluminum, thermally resistant profiles, and they are made as a Euro slot system.

The design of wide, even surfaces and sharp lines suggests the monolithic quality of clearly defined frames. The window AT135 with its massiveness, contemporary and straight lines, undoubtedly belongs to the passive house esthetics. Excellent structural properties facilitate construction of the large window schemes, whereby massive wooden frames give a special impression of warmth in the interior.



1

Cross section through the window frame with the opening sash

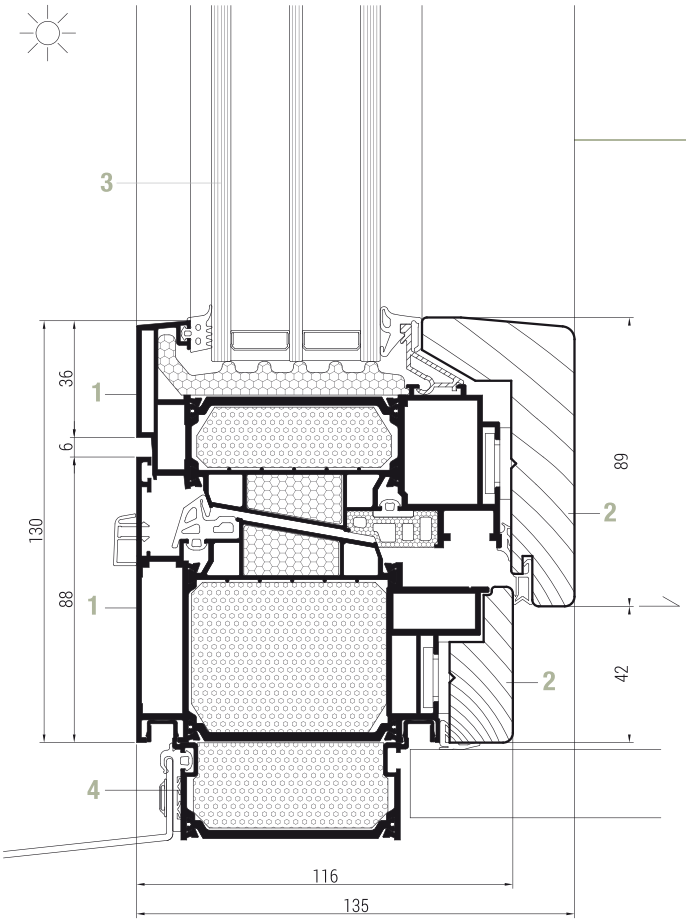
2

**Single sash window**/internal view

3

**Single sash window**/external view

# Window system components:



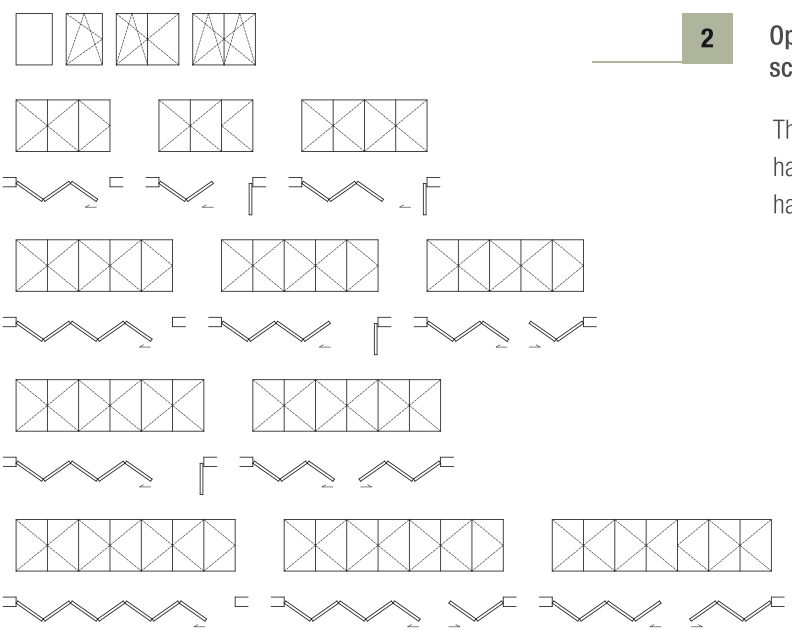

## 1 Cross section through the opening section of the window sash

1 Aluminum profiles of the frame and the sash doubled with polyamide profiles, anodized or plastic coated in optional colors

2 Oak wood tone colored as specified by the customer, with the finish layer of water-based varnish with a desired sheen percentage

3 Triple thermal insulation glass, optional in terms of thickness, quality, color and reflection from the market assortment

4 Optional fitting of an additional profile in the lower part of the window for the more precise installing of window sills and aprons.

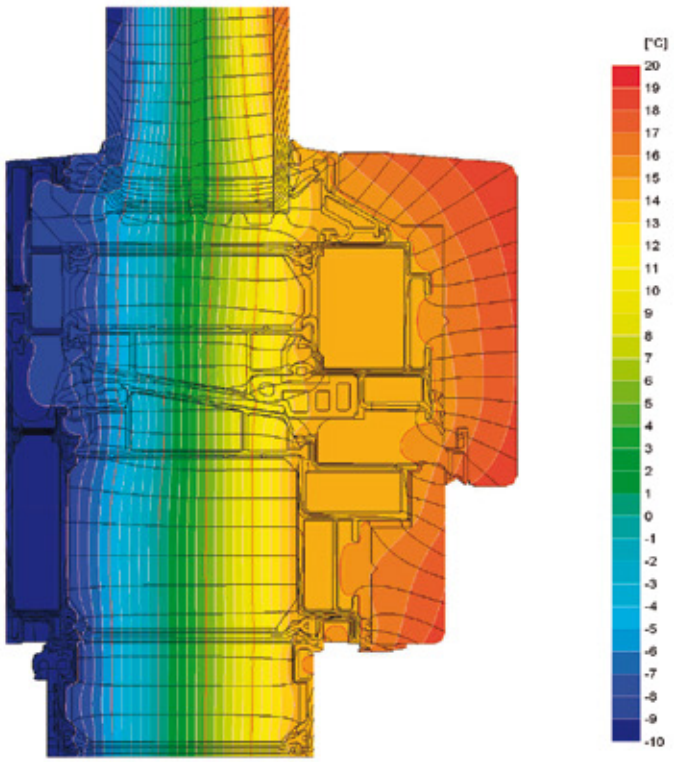


## 2 Optional window schemes

The standard offer comprises MACO or ROTO hardware, with hidden hinges, and Hoppe Toulon handle

**permissible dimensions of the sashes are determined according to the diagrams resulting from the capacity of the system and hardware*

## Window system characteristics




3 View of isotherms in the cross section of the window sash

WinIso® 2.7.5. © Sommer Informatik GmbH, registred for Vizus d.o.o.

Wind resistance **Class C5**
Air tightness **Class 4**
Water tightness **Class E900**

Frame thermal conductivity coefficient:
**Uf=0.76W/m²K**

*thermal conductivity coefficient on the window of certain dimensions when using the triple glazing Ug=0.5W/m2K and WE spacer bars: dim. 1230x1480mm Uw=0.65W/m2K

*thermal conductivity coefficient on the window of certain dimensions when using the triple glazing Ug=0.6W/m2K and WE spacer bars:: dim. 1230x1480mm Uw=0.72W/m2K

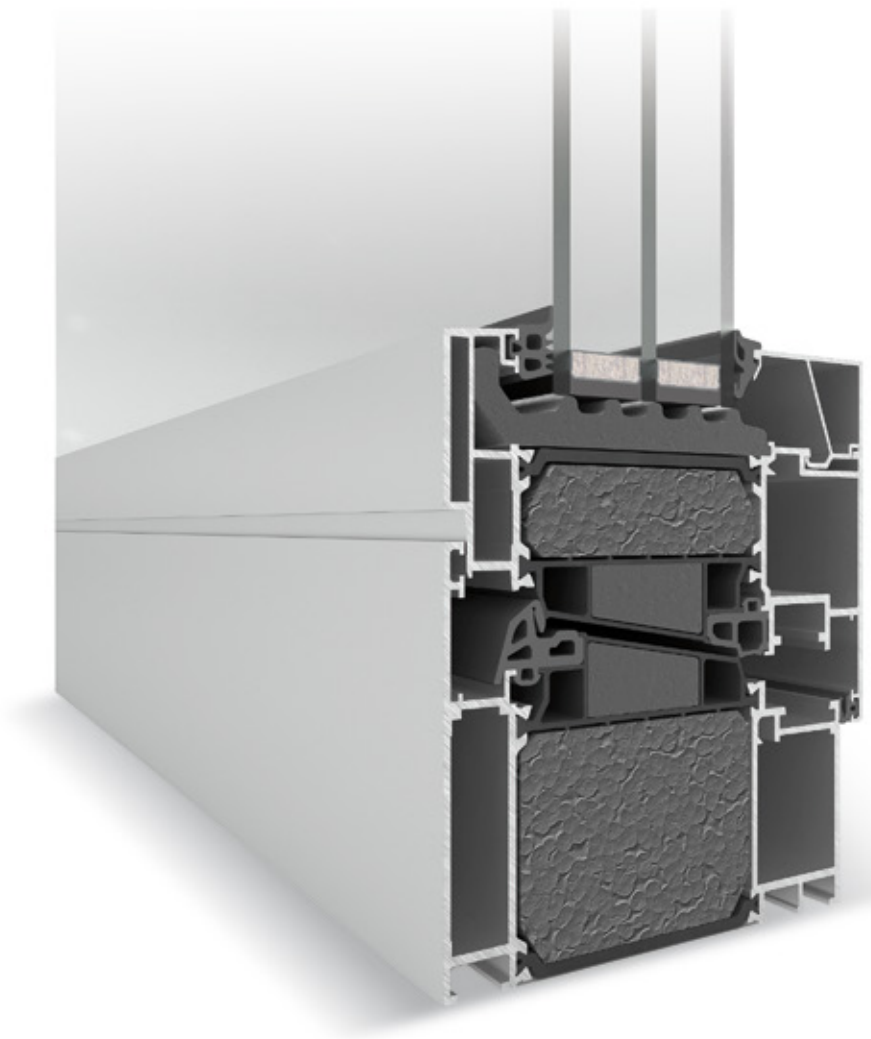
*the system Vizus AT135 due to its performance belongs to the base of passive windows which can be seen on the site www.passiv.de

# VP106

**Vizus VP106** is composite window system with inward opening, characterized by extremely pronounced resistant properties. Designed along the same principles as AT 135, with a goal to satisfy the rigorous requirements of the principles of sustainable architecture, possesses excellent performances: thermal resistance, wind resistance, air, water and sound proofing. The realized thermal resistance of the window sash, combined with splendid performance of triple glazing provides the extremely low coefficients of thermal conductivity of the entire window.

The system VP 106 is also characterized by the massive dimensions of window frames, vertical and horizontal partitions: basic frame thickness 106mm, sash thickness 114 mm and total sash height 130mm. The hardware slots are set in the aluminum, thermally resistant profiles, and they are made as a Euro slot system.

In formal terms, VP106 belongs to the esthetics of the passive house, while its excellent structural properties facilitate construction of large window schemes.



1

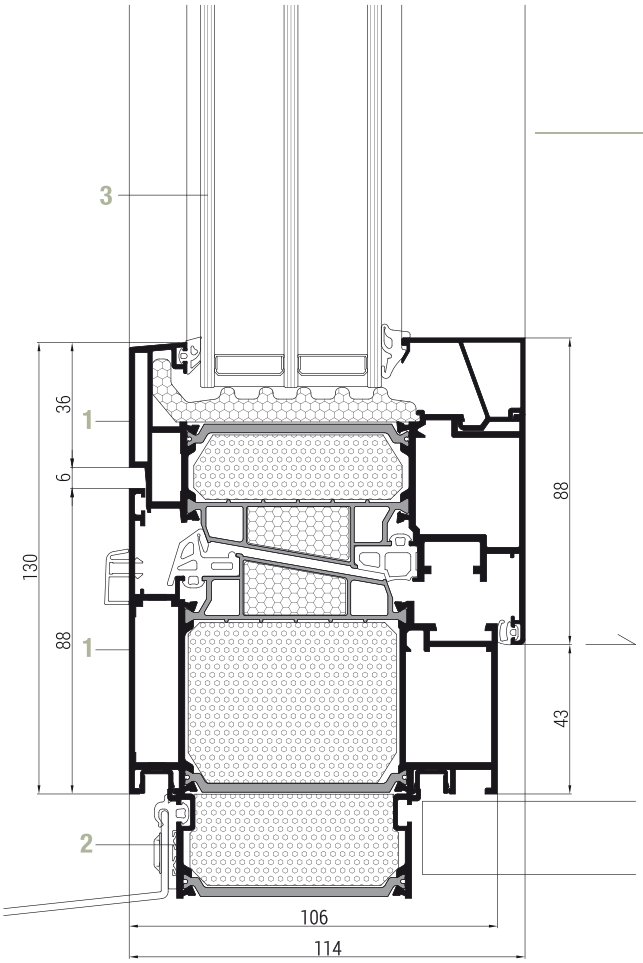
Presek kroz prozorski ram sa otvarajućim krilom

2

**Single sash window**/internal view

3

**Single sash window**/external view

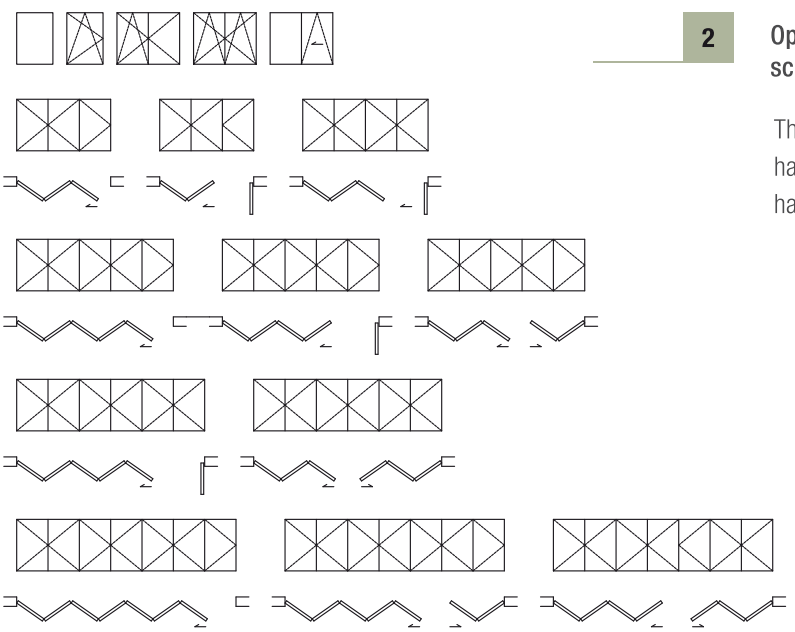



## 1 Cross section through the opening section of the window sash

1 Aluminum profiles of the frame and the sash doubled with polyamide profiles, anodized or plastic coated in optional colors

2 Optional fitting of an additional profile in the lower part of the window for the more precise installing of window sills and aprons.

3 Triple thermal insulation glass, optional in terms of thickness, quality, color and reflection from the market assortment

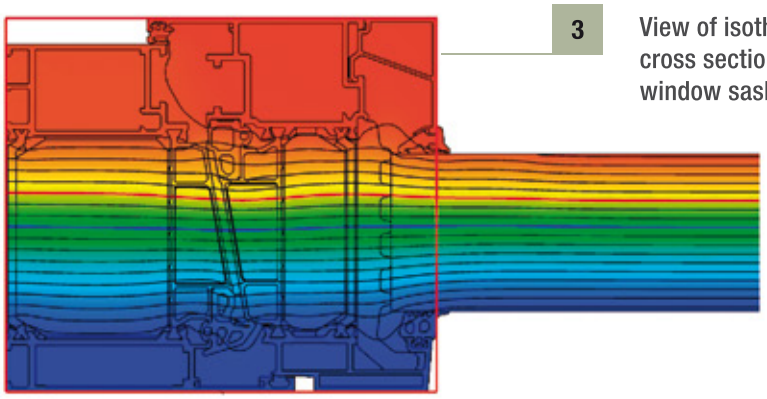


## 2 Optional window schemes

The standard offer comprises MACO or ROTO hardware, with hidden hinges, and Hoppe Toulon handle

**permissible dimensions of the sashes are determined according to the diagrams resulting from the capacity of the system and hardware*

## Window system characteristics



3 View of isotherms in the cross section of the window sash

WinIso® 2.7.5. © Sommer Informatik GmbH, registred for Vizus d.o.o.

Wind resistance **Class C4**
Air tightness **Class 4**
Water tightness **9A**

Frame thermal conductivity coefficient:
**Uf=0.81W/m²K**

*thermal conductivity coefficient on the window of certain dimensions when using the triple glazing Ug=0.5W/m2K and WE spacer bars: dim. 1230x1480mm Uw=0.70W/m2K

*thermal conductivity coefficient on the window of certain dimensions when using the triple glazing Ug=0.6W/m2K and WE spacer bars: dim. 1230x1480mm Uw=0.77W/m2K

*sistem Vizus AT135 zbog svojih performansi pripada bazi pasivnih prozora koja se može videti na sajtu www.passiv.de

# Wood color chart

**Full wood**

Interior wooden frames are firstly joined and then surfaced, color toned and finished with water based varnish. Color tones are chosen from the enclosed Vizus color chart, or according to a sample supplied by the customer.

**the presented colors are applied on the full oak wood*

Notes

PROZORSKI
SISTEM

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