

# Technical Description

## **OPTIWIN RESISTA**

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## 1. Product "OPTIWIN RESISTA" General Description

The OPTIWIN RESISTA System is a window system with bonded glazing in the sash. A surrounding aluminium profile is also mounted on the sashes. This is therefore visible as a continuous frame.

Furthermore, this system has a second drainage level and 4 peripheral seals. The external region of the lower profile of the drainage has an Accoya profile in the scantling. This scantling is mould- and fungus-resistant. Durable strength and function in this area is ensured.

The total width of the system is 95 mm all round. The depth of the window is 149 mm and includes a 40 mm outer layer.

The window system has a passive house certificate and is listed by PHI Darmstadt in the category "Advanced Component A". Special models with GRP cross-sill are possible in this system.

A low-barrier or barrier-free execution is possible with the GRP cross-sill with this system. This particular cross-sill structure also includes the second drainage level.

The system is divided into the options "modern" and "classic".

### **"modern"**

Inner flush design with a concealed fitting. The execution is carried out in a modern look with a shadow joint between the sash and frame stock. The elements with a concealed fitting can be opened to an angle of approximately 100°. The fulcrum of the fitting travels and pushes the sashes within the frame when opened.

### **"classic"**

The optics inside do not have a flush execution. A fitting with visible or hidden reels is possible. The execution is carried out in the familiar window optics with a sash overlap. In this variant, the sashes can be opened from 90° to about 180° depending on the fitting.

## **2. Materials**

### **2.1. Wood**

- Any approved timber (multi-layer bonding) can be used. Special woods are available on request.
- In the lower area an Accoya scantling is processed in the outer third of the total scantling.
- The outer shell consists of softwood with a narrow aluminium cover
- Finger-jointing in the length and laminated scantlings is permitted
- The corner joints are connected with push-in studs, dowelled or have slot-pin bonding
- Ecological insulation, wood fibre insulation and sheep's wool
- EN 942 applies to the quality of the wood in conjunction with the VFF information sheet HO.02 (Selection of wood quality for wood windows and doors), HO.06 (wood types for window construction - requirements, types of wood table) and HO.07 (wood types, specific purchasing recommendations), Association of Window and Façade Manufacturers, Frankfurt am Main.
- The moisture content should be 12%. The scatter range of the wood moisture must not exceed +/- 2%.

### **2.2. Surface**

#### **2.2.1. Inside**

- The priming for thin glaze or thick glaze is done by dipping or flow coating process, insofar as the size of the window elements allows. The same applies to the border material.
- 2 x oiled or thick-film or thin-film glaze
- The surface treatment is carried out before application of the outer layer
- The coating is carried out according to the "Technical Guidelines for Window Finishes" and the guidelines of the product supplier.
- Fittings and other metal parts are attached after the final coating.

### 2.2.2. Outer shell

- Aluminium RAL coated or anodised, according to the standard colour chart. All visible surfaces of the aluminium parts are painted.
- Coating systems of polyester and polyurethane-based powder paint coating
- The frames can be also welded on request. This leads to extended delivery times and must be requested separately.

### 2.3. Glazing

- Standard: Triple heat protection insulating glass 4/18/4/18/4
- $U_g$  value from 0.5 W/m<sup>2</sup>K according to EN 673, g value > 50% according to EN 410 (depending on pane thickness and space between panes)
- Depending on requirements glass packages with total thickness of up to 54 mm are possible
- Spaces between are filled with 90% argon as standard
- Colourless, selectively radiolucent metal oxide or noble metal-layer system on the inner and outer panes. The panes can also be made of white glass if required.
- Sound, sun and burglary protection glass is possible (safety glass is extra). Requirements shall be separately defined locally and regionally by the planner or the client
- Air and moisture-proof edge bond with metal profiles or plastic as well as silicone foam are possible. (Stainless steel - e.g. Chromatec).
- The glazing of the sash is carried out as wet glazing without window bars. The glazing is bonded all round to the window frame in the rebate.
- With fixed glazing, the window bars are invisible by means of a proprietary clip system, or visibly attached with V2A screws.
- In rare cases spontaneous fractures are possible with single-pane safety glass. This risk can be reduced significantly through the use of a heat-soak test. The extra cost for this will be provided on request. A heat soak test must be offered separately.

## 2.4. Seals

- 4 acrylic resistant, circumferential seals (not welded) are standard in the system.
- The faceplate area of a double-sash window is also sealed in several circumferential layers.
- The sealing profiles are basically comprised of EPDM or silicone and comply with the requirements under DIN EN12207, DIN EN 12208 and DIN EN 12365, Parts 2 to 4.
- The blind frame is provided with a circumferential, factory-assembled seal. It is located in the outer layer and strikes the glazing. This seal is designed with a pressure relief for the chamber
- The sash includes two seals in the inner rebate area as well as on the sash cover side. All seals are factory pre-assembled circumferential seals.

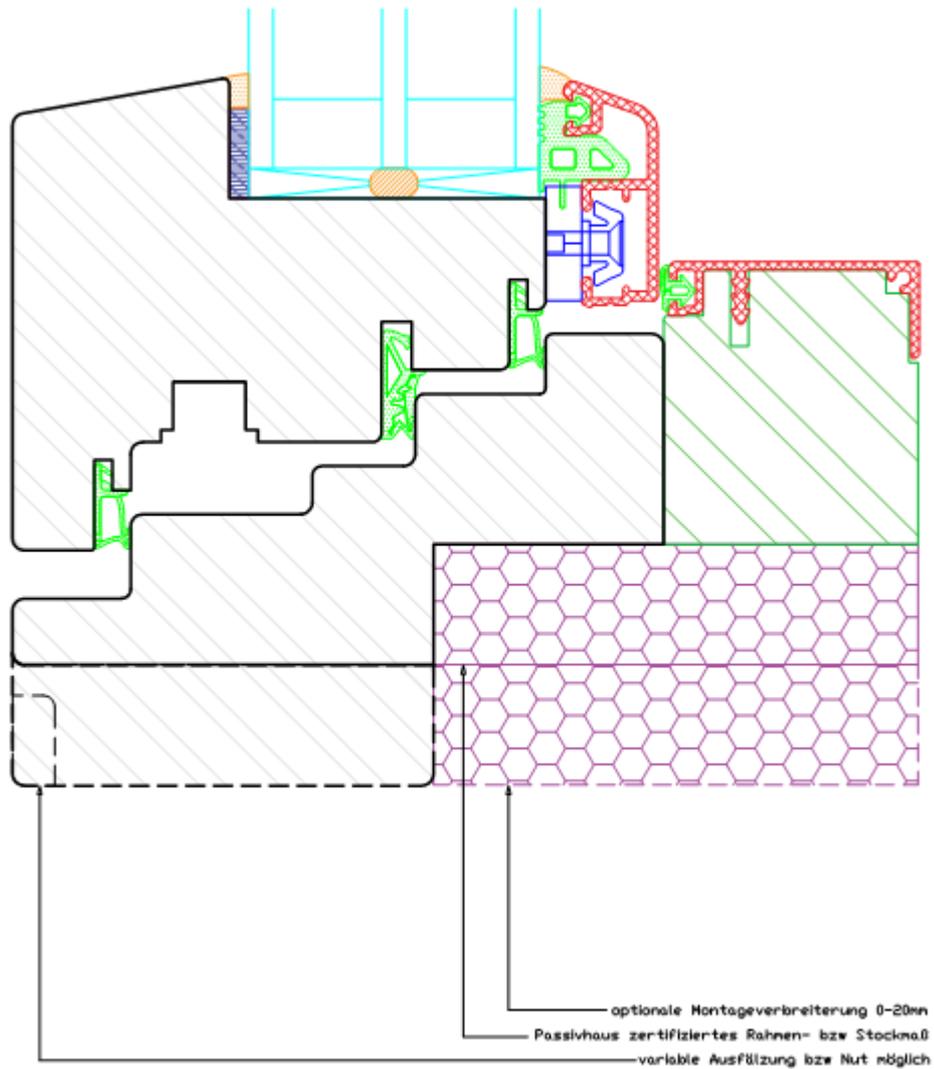
## 2.5. Fittings

- Chrome-coloured steel fittings from ROTO System Designo II or equivalent with proven technology. Visually, the corner bearing is not visible but concealed mounted in sealed frames. Or executed with the ROTO E5 fitting or equivalent with visible reels, which are available for the "classic" variant.
- Multiple lockable central locking, standard handle of anodised aluminium are optional, according to the menu.
- The corner bearings are adjustable in three dimensions
- Special fittings for burglary prevention are possible. The central locking system with one-handle operation is concealed in the sash.
- Visible fittings and locking points depending on the stress group and specification of the hardware manufacturer. Tilt strike plate made of steel with mushroom head lock.
- A flawless operation of the fittings and functionality of the security, or erroneous actuation locks are guaranteed.
- For special applications, for example, in regions with salty air, or in areas with increased chemical exposure, it is recommended to request this separately. For enhanced requirements there are surfaces which have increased and improved corrosion resistance, are scratch-resistant, as well as being water- and dirt- repellent. This needs to be discussed in advance.

### **3. Installation situation**

- The blind frame must be completely covered. The aluminium profile defines the boundary of the exterior plaster or the façade
- The window and door frames are only suitable for openings with internal stop
- Spacers for shutters or due to floor construction must be defined and ordered separately.
- Blind drains and drainage are to be defined by the planner. Likewise their professional installation and operability on site must be ensured.
- Millings for the windowsill rebate, internally and externally, must be clarified in detail. The connection of panels and window sills should be discussed by the company performing the work with the window manufacturer to avoid possible damage. A second water-bearing layer must always be provided under the windowsill.
- Thermal bridges due to improper installation of the window should be avoided. We would be happy to make you an offer for the calculation of  $\Psi$  installation values for the products.

The reference limit for the PHPP is the outer edge of the certified window dimension. Enlargements outside of these dimensions are cavities and therefore to be recorded in the  $\Psi$  installation values for the building. Hence the information on the passive house certificate  $U_f$  values and dimensions are binding.



## 4. Testing and certification

The OPTIWIN RESISTA modern is a passive house certified window system. The categorization of the window system by PHI is in the range of "Advanced Component A"

As part of the CE marking, the products of OPTIWIN RESISTA modern were tested by PFB Rosenheim according to EN 14351-1 with the following results. The following variants are available:

- Resistance to wind load – Test pressure: Class 5
- Resistance to wind load – Frame deflection: Class: C
- Rain impermeability - unprotected (A): Class E2150
- Heat transfer coefficient: < 0.80 W/m<sup>2</sup>K at Ug 0.7 W/m<sup>2</sup>K
- Air permeability: Class 4
- Sound insulation value Rw 36 dB or higher, depending on the glazing

### Remarks:

The values indicated above refer to the standard window dimensions of 1230 mm x 1480 mm. The guaranteed values in the performance specification correspond to the regionally defined minimum requirements unless separately defined and certified by a separate declaration of performance by the company.

You can find the passive house certificate of PHI Darmstadt under [www.passiv.de](http://www.passiv.de)  
[http://database.passivehouse.com/de/components/window\\_details/106](http://database.passivehouse.com/de/components/window_details/106)

### Fenster RESISTA

Info U-Wert-Berechnung

Komponenten-Id: 0514w03  
Hersteller: OPTIWIN GmbH  
Kategorie: Fensterrahmen  
Material: Wood/Alu  
U<sub>w</sub>: 0.80 W/(m<sup>2</sup> K)  
Effizienzklasse: pH A  
Bemerkung: Lambda Holz: 0.11  
Abstandhalter: Super Spacer TriSeal / T-Spacer Premium  
Klimazonen: Kühl-gemäßigt

Lambda Holz: 0.11

Zertifikat herunterladen (en, de)

Rahmenschnitt	Rahmenbreite b/mm	U-Wert des Rahmens U <sub>f</sub> (W/(m <sup>2</sup> K))	ψ-Wert der Glaskante ψ <sub>g</sub> (W/(m K))	Temperaturfaktor f <sub>0,05</sub> = 0.25 m <sup>2</sup> K/W
Unten	95	0.91	0.024	
Seitlich	95	0.81	0.024	
Stulp	122	0.94	0.023	
Oben	95	0.81	0.024	

Zurück zur Liste

## 5. **Assembly**

- The assembly of the elements is carried out by the manufacturer or a partner of the manufacturer if one is commissioned.
- The definition of the installation situation is the responsibility of the customer and must be made available by the respective planner. Specific and special construction requirements are to be reported to the manufacturer when placing the order.
- Standard joint insulation is done with PUR, or on request with organic and optionally sustainable insulation and materials.
- The assembly is to be performed in accordance with ÖNORM B5320 or DIN 4108, Part 7, should no special requirements or requests be presented to the manufacturer.
- Masonry or side connections must be prepared for vapour-proof assembly. No construction adhesive should be used for this, a fine interior plaster should be used instead.