



INSTALLATION REFERENCES

RESYSTA WCWA



15 YEARS
GUARANTEE

- no swelling
- no cracking
- no splintering
- no rotting

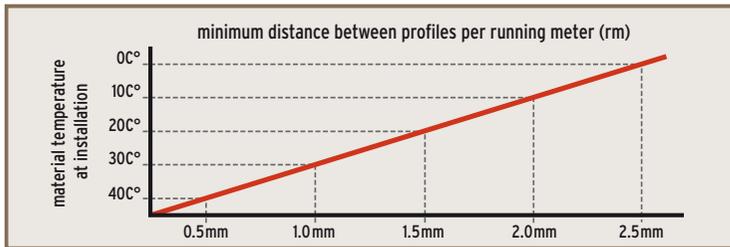




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1. Basics

A The dimensional change of Resysta is solely dependent on the thermal expansion. Air humidity and water have no influence on dimensional change. Thermal expansion has to be considered at installation. However, screw connections prevent thermal expansion. This means that normal, general thermal expansion of the material only occurs at the free ends.



B Cutting to length should be carried out at consistent material temperature. Therefore, the material should be stored in the shade or in areas where it is not exposed to direct sunlight. The material can warm up considerably in the sun, leading to an increased change in length. In the case of more distinct material temperature fluctuations, cutting to length may have to be adapted accordingly. At a temperature difference of 10°, the deviation amounts to approx. 0.4 mm per running meter.

C Resysta has a high vapor diffusion resistance. Please consider at installation.

D As standard, Resysta holds the flammability classification B2 (normal flammable according to DIN4102). With additives - B1 is possible. For projects requiring B1 classification, please inquire separately for profiles. Facade profiles are construction materials which have to fulfill the requirements of the state building code. Further information may be obtained at your responsible building authority and fire-prevention department respectively.

E Cut-off pieces and/or abrasive dust have to be disposed separately. Please comply with regulations of your competent waste management. You may under no circumstances burn Resysta yourself.

Wood Preservation – Properties in Comparison to Wood

In comparison to wood and owing to the material properties the following does not apply to Resysta:

- discoloring of the surface due to chemical decomposition and wash off of wood components
- resin discharge
- surface erosion
- crack formation due to expansion and shrinking
- ingress of moisture (water)
- dishing due to varying moisture spreading
- capillary action at frontal area

Resysta is an innovative material consisting of polymers and rice husks and does not feature typical wood characteristics like graying, cracking and splintering. Owing to the special properties of Resysta, the basic installation technique merely differs in some aspects from the installation of other products.

STORAGE

- Please store Resysta products horizontally on level surface.
- The profiles should never be covered with plastic foil - no matter if already mounted or not. Condensation and accumulated water can cause staining.

2. Product Range *

WCWA 300 x 33



material color	Resysta natural
height x width	290 x 33 mm
length	1500 mm

WCWA CR 300 x 300



material color	Resysta natural
height x width	290 x 300
x length	x 300 mm

WCWA LE 300 x 33



material color	Resysta natural
height x width	290 x 33 mm
length	1500 mm

WCWA RE 300 x 33



material color	Resysta natural
height x width	290 x 33 mm
length	1500 mm

WCWA WALL HOOK



material	aluminium
width x height x depth	20 x 45 x 20 mm

* Additional profiles are available, which can for example be used as runners or end pieces.

3. General Information

The assembly should be carried out by a skilled specialist.

Standard woodworking tools can be used for the processing of the material.

SAWING: Resysta may be cut longitudinal and transversal with all customary saws.

MILLING: Any profiles can be milled easily by means of customary woodworking machines.

GRINDING: Resysta should be grinded in longitudinal direction only.

Depending on the required surface structure, we recommend the use of sand paper with graining between 24 and 60. Fine-grit sand paper should only be employed for the removal of dirt.

DRILLING: Drilling can also be done with customary standard wood drills.

Bonding

Resysta International GmbH offers adhesives and bonding agents for the bonding of surface profiles with floor, wall and ceiling. Resysta may be glued with standard PU-adhesive or a suitable plastic adhesive.

Varnishing

Resysta can be treated with Resysta glazes. You will find especially developed and carefully matched color shades in the Resysta Color Concept. Please only use the colors and sealer especially developed for Resysta.

Cleaning and Care

Resysta is extremely easy to maintain. Please refer to cleaning and maintenance details specified in the separate information sheet or at www.resysta.com.

4. Pre-Treatment

Application of the color-glaze (FVG)

To obtain a uniform and optimal color result, the glaze should be applied at consistent basic conditions.

We therefore recommend applying the glaze before installation on each profile individually. Application temperature approx. 5° - 25°, relative air humidity approx. 50 - 60%.



Please do not apply the glaze under direct exposure to sunlight or at high risk of rain. The glaze should be applied rapidly and with a broad paint-brush.

Application of the sealant (RFS)

To achieve increased protection against soiling and weathering we generally recommend application of the sealant. The colorless sealant may be applied to Resysta untreated and Resysta glazed material. For further details please refer to data sheet 'glazes and sealants' at www.resysta.com.

Surface treatment Resysta

Reasons for recommended surface treatment of Resysta:

- color scheme
- protection against soiling
- protection against brightening of color

5. Installation Instructions

1. Rear Ventilation



Due to Resysta's high diffusion resistance, a rear ventilation of the facade is always required. The rear ventilation space must consistently measure at least 20 mm and may not be narrowed.

2. Joint Pattern



We recommend the formation of staggered joints. In this case, the lining-up of the joints can be accomplished more neatly and the mounting tolerances are less visible.



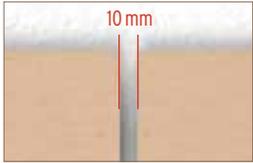
In the case of end-to-end joints, installation tolerances and variations in length could lead to a slightly irregular joint pattern. To avoid this, we recommend the fixation of the individual elements.

3. Center Distance

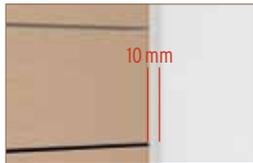


5. Installation Instructions

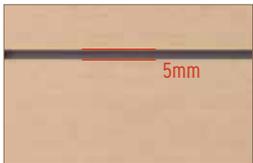
4. Spacing



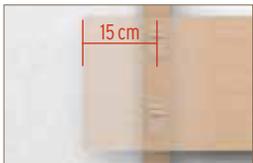
The expansion joint should measure 10 mm with frontal profile joints.



When connected to another building, an expansion joint of 10 mm is required.



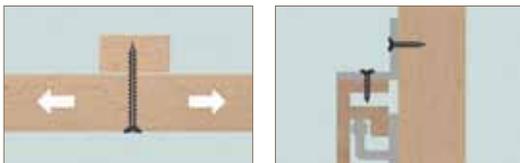
Horizontally a distance of at least 5 mm has to be maintained between the profiles.



Maximum excess end (to hook) 15 cm.

5. Fixation

To specifically control the expansion of the panel elements, a fixation is recommended. This is achieved by securing the elements with a screw or an L-angle piece onto the support battening.



6. Edges

Ingress of moisture at the edges cannot occur. To improve color adherence, we recommend rounding off sharp edges and cutting edges prior to color treatment with 80 - 100 grid sand paper.

7. Frontal area protection

Resysta does not feature capillary action. Therefore, a frontal area protection with color is not strictly necessary. Paint coating may however be done for visual reasons.

8. Driving rain protection

Thanks to the high material density no adverse effects are caused by driving rain.

9. Splash water protection

Thanks to the high durability (resistance) of Resysta a material impairment does not occur. Increased soiling can be expected and can result in staining. We recommend treating Resyta with sealant (RFS) in the affected area. It is absolutely required to protect the substructure against ingress of moisture.

6. Assembly

6.1. Substructure

The substructure has to be designed according to professional carpentry requirements. The dead load and the high diffusion resistance of Resysta have to be taken into consideration. Fastening of the facade is generally carried out on a wooden substructure.

Please attend to the following guidelines for substructures:

- wood must correspond to sort-classification S10 according to DIN 4074
- individual cross-section must be chosen according to DIN 1052
- wood has to be preserved according to DIN 68800 - wood preservation in building construction
- wooden battening and joists have to be screwed diagonally with 2 screws (A2) at the cross-over point
- fixation with fasteners approved by building authorities and according to manufacturer specifications
- the substructure has to be adjusted in alignment and perpendicular orientation

For the substructure, Resysta International GmbH provides special profiles, which may also be employed. For more details please refer to www.resysta.com.

We explicitly recommend the use of the Resysta substructures because of their durability and water resistance.

6. Assembly

The support battening can be installed vertically or horizontally. The following spacing has to be considered prior to support assembly.



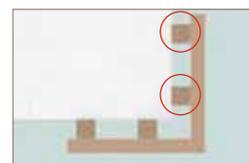
With vertical support battening:

- maximum support span of WCWA 700 mm
- spacing of WCWA frontal or to another building structure 10 mm
- maximum excess length of WCWA 15 cm



With horizontal support battening

- hook position
- distance between profiles in horizontal direction at least 5 mm
- **NOTE:** This has to be considered if larger joints are required in horizontal direction.



When using the corner element, 2 fixing points on each side are required.

6. Assembly

6.2. Fixing the first clip/guide rail



Fasten the lowermost clips according to the required distance to floor.



6.3. Fixing of further clips/guide rails



Fasten further clips according to WCWA mounting and the required distances in horizontal direction.

NOTE: To obtain consistently equal distances, a batten with accordant cut-out can be used as template (this can for instance be made out of beech wood).



6.4. Fixing bottom corner



First fasten the lowermost element. Various design options for the corner finishing are possible.

6.5 Corner end piece

Corner solutions can be worked similar to wooden facades. Thermal expansion has to be implicitly considered for the spaces.



open miter joint



wall cladding element



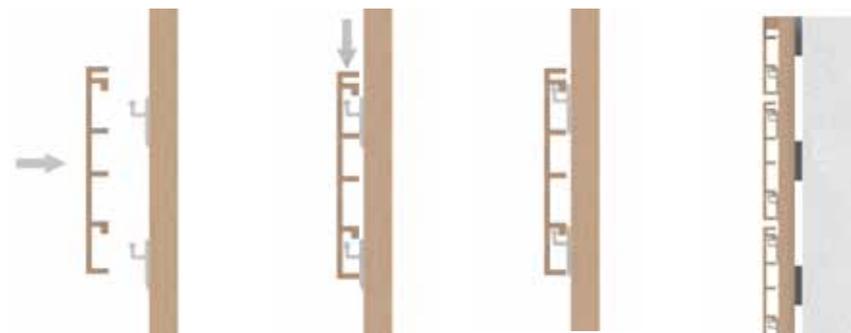
open straight corner

Optionally open joints can also be concealed. e.g. with ANP 5050.

NOTE: Cover and corner end piece have to be chosen in a way that it does not interfere with the free expansion of Resysta. Moisture penetration into the substructure must by all means be avoided.

When designing the inner corner, it also has to be ensured that Resysta can freely expand and that moisture penetration is avoided.

Detail - WCWA mounting



6. Assembly

6.5. Fixing bottom wall profile



Fasten the bottom wall elements starting from the corner element. Keep a space of 10 mm between the joints.

6.6. Fixing further corner/wall profile



Fasten the following corner and wall elements as described in 6.4. and 6.5.

6.7. Fixing topmost corner/wall profile



Cut the topmost corner or wall element to the correct width and fasten it. In case the top mounting panel was cut off, fasten the elements with screws onto the support battening. Possibly use a compensation piece to avoid tilting.



6.8. Lateral end piece



recessed end piece



overlaying end piece



Please consider joint distances at lateral end pieces.

6.9. Joining

Joining to roof frames, window lintels, window reveals, apron walls etc., has to be carried out in a manner that avoids ingress of water into the substructure and allows for controlled water drainage. In this regard the use of aluminum Z-profiles is recommended.



Connections can also be carried out with various Resysta profiles, for instance apron walls with FP 200/5. When designing the connections, thermal expansion of Resysta has to be taken into account.

7. Important Information

- Resysta WCWA are not approved by building authorities.
- Resysta profiles are not suitable for supporting or constructional purposes.
- Local building codes have to be observed accordingly.

- Resysta is a new construction material. Basic constructions, fixing material, etc. have to be conducted in accordance with the general state of technical knowledge and adjusted to the respective application area and purpose.

- Check material quality prior to installation.
- In case of complaints the material may not be installed.

- Please adhere to all current standards and regulations as well as VOB.

- Illustrations in this guideline are no mechanical drawings and display no technical solutions.

8. Technical Data

Density	ASTM D2395:2002	approx.1.46 kg/m ³
Coefficient of Linear Thermal Expansion	ASTM D696	3.6x10(-5)mC
Water Absorption and Air Humidity Behaviour	ASTM D1037:2006a	none or very low water absorption (only surface wetting)
Weathering and UV Resistance	QUV Test	Resysta surfaces treated with glaze show extremely high resistance
Skid Resistance	DIN 51097	C Rating (highest rating)
Fire Behaviour (British Standard)	BS 476 Part 6 & 7	B2, normal flammability (by adding flame retardants, a higher rating of B1 can be reached)
Fire Behaviour (US Standard)	NFPA	A Rating (flame propagation 25, smoke emission 450)
Fire Behaviour (British Standard)	BS 476 Part 6&7	Rating 1
Durability (Resistance to Wood-Destructive Fungi)	DINV ENV 12038:2002	the material has not been affected, highest durability - Class 1
Emission	DIN EB ISO 9001/14001	passed
Brinell Hardness (HB)	EN 1534	81,1 N/mm ²
Friction Coefficient μ untreated	EN 13893	0,46
Friction Coefficient μ with 2K	EN 13894	0,52
Screw Withdrawal Resistance	EN 320.2011-07	5777 N
Heat conductivity (λ)	EN 12664	0.199 W/(mK)
Water vapor permeability	DIN EN ISO 12572	$\mu=1300 \rightarrow$ sd 7.22m diffusion inhibiting
Bending Strength	ISO 178	46 N/mm ²
Bending Modulus	ISO 178	3850 N/mm ²
Tensile Strength	ISO 527	21,8 N/mm ²
Tensile Modulus	ISO 527	2340 N/mm ²
Shearing Strength	EN 392	16,8 N/mm ²
Resistance to Mould Fungal Decay	CEN/TS 15083-2	The material features almost no mass loss, highest durability classification 1 (very durable)
Resistance to termites	ASTM D3345-08	Resistant to termite infestation (coptotermes curvignathus), very little loss of mass - very high durability
Electric surface resistance and volume resistivity	Specific surface resistance and volume resistivity	Surface resistance $R_x=8,0*10(13) \Omega$ Specific surface resistance $\alpha=8,1*10(14) \Omega$ Volume resistivity $R_x=2,2*10(13) \Omega$ Specific volume resistivity $\alpha=6,3*10(14) \Omega$



The Future Formula Is Called Resysta

Verwendete Rohstoffe:



approx. 60% rice husks + approx. 22% rock salt + approx. 18% mineral oil = Resysta

All specifications provided are subject to our installation guidelines and appropriate use at outdoor exposure.

The installation guide may be adapted to technical progress without prior notice.

A download link for the current version is available at www.resysta.com.

Subject to alteration. Slight deviations in color, photos and graphics could occur due to printing process.

www.resysta.com