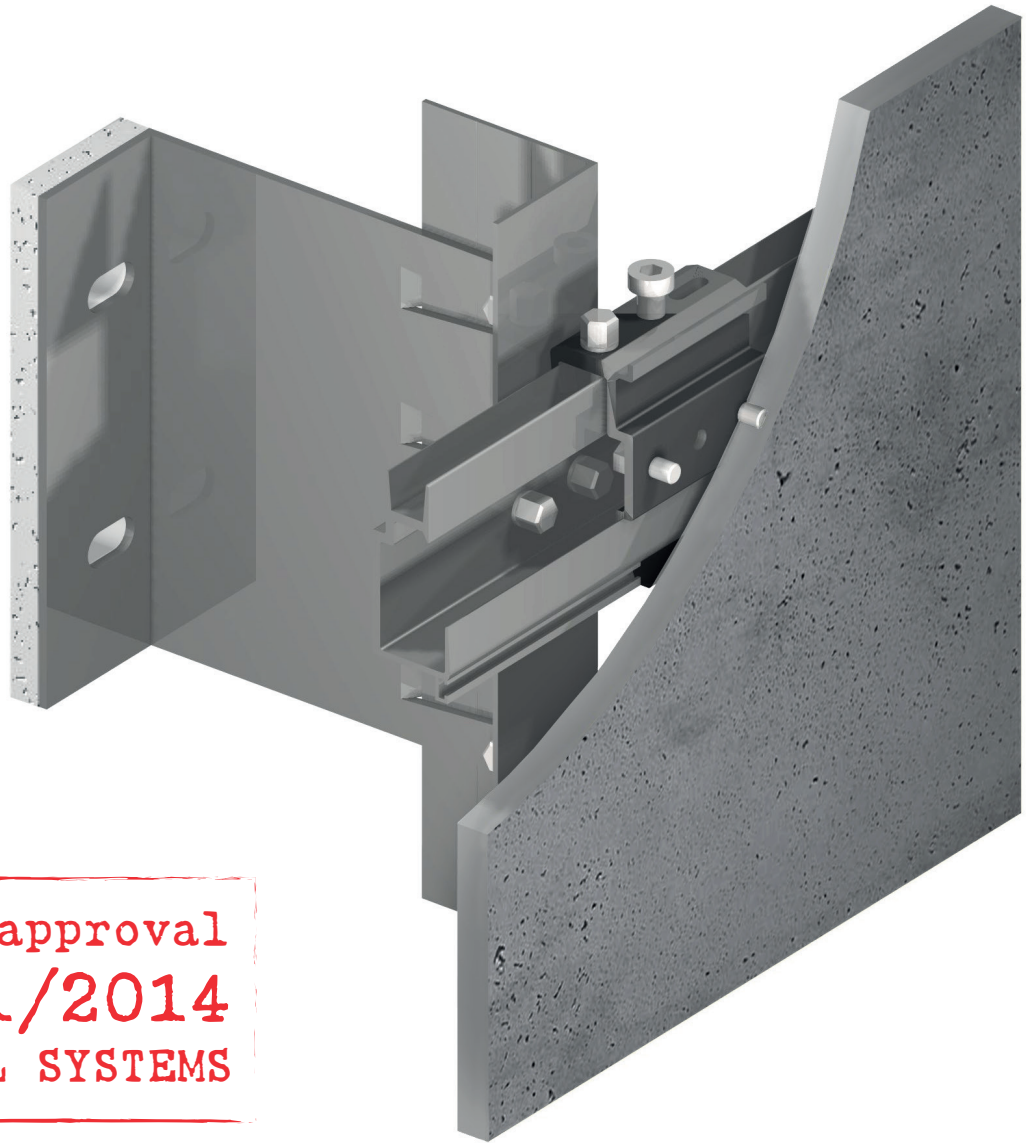
The Wido-Inv system – invisible mechanical fixing

Wido-Profil



ITB technical approval
AT-15-9301/2014
FOR WIDO-PROFIL SYSTEMS

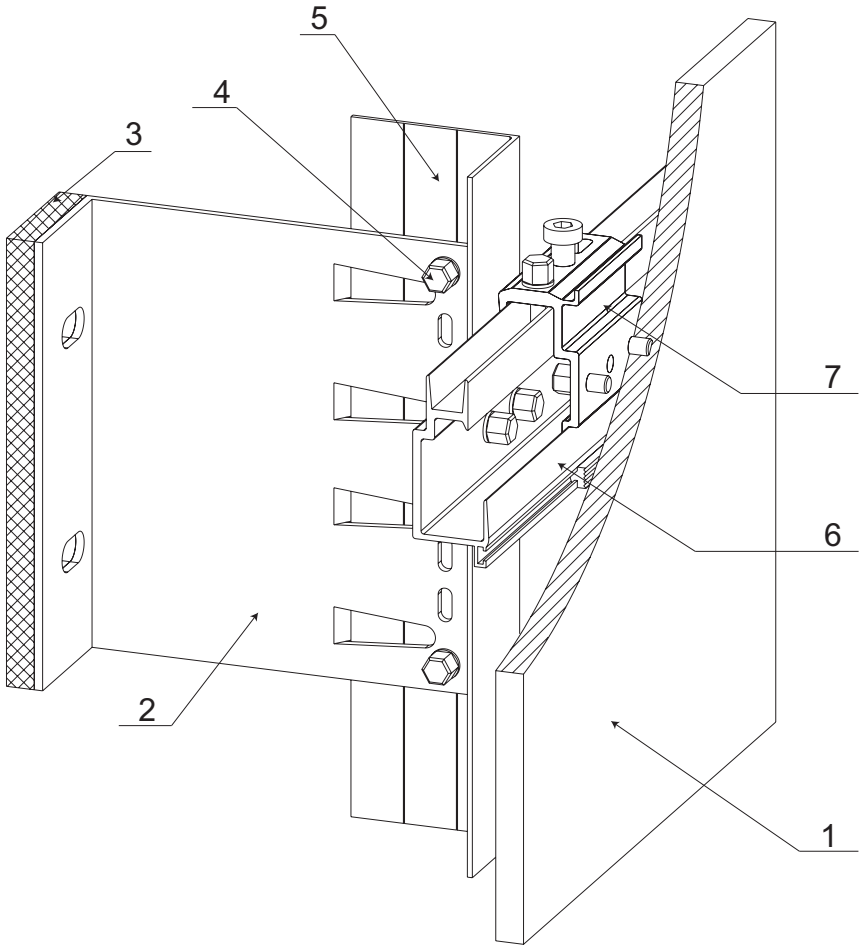
Wido-INV - INVISIBLE FIXING

Notice: technical parameters for panels should be verified according to the panel and complementary element producers' guidelines.

The Wido-Inv system – invisible mechanical fixing

Wido-Profil

GRC concrete façade panels can be assembled mechanically with the Wido-Inv system, which provides invisible fixing. This method uses two kinds of structures: **an aluminium Wido-Grip substructure and horizontal elements assembling the panel with hanging brackets and fasteners** (invisible assembly elements).



It is strongly advised that the customer, project owner and architect seek independent advice from a certified construction professional and/ or engineer regarding application and installation, as well as compliance with design requirements, applicable codes, laws and regulations, and test standards. Please check your local codes and applicable design requirements for proper use.

An individual executive design of the ventilated façade is recommended.

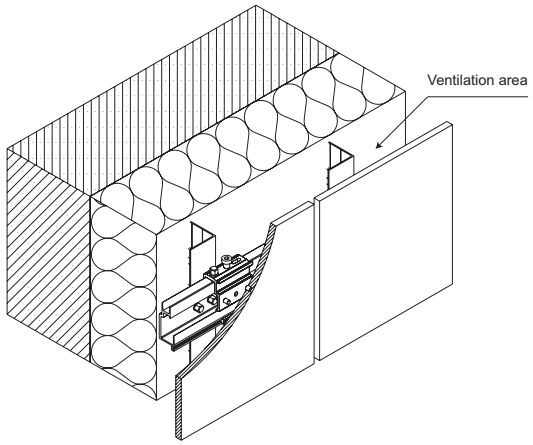
Legend:

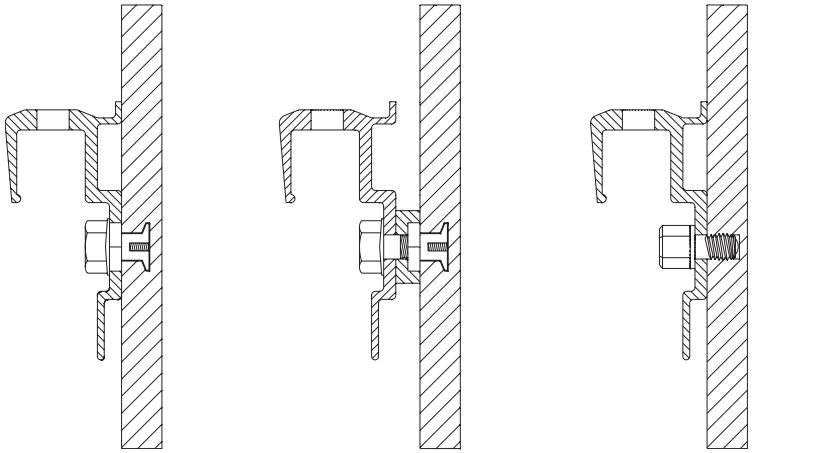
1. GRC façade panel
2. Wido-Grip aluminium double bracket
3. Wido-Grip insulation washer
4. Screw or rivet
5. Wido-Grip aluminium supporting L-profile
6. Wido-Inv profile
7. Wido-Inv hanging bracket

Wido-INV - INVISIBLE FIXING

The Wido-Inv system – invisible mechanical fixing

Wido-Profil





Keil undercut anchor – direct fixing without a distance

Keil undercut anchor – direct fixing with a distance

TU-S fastener – direct fixing without a distance

General recommendations:

1. Ventilation and ventilation area

In order to ensure constant ventilation behind the panels, it is recommended to leave a 20-to-50mm-wide clearance between the facing and the thermal insulation layer or construction wall, which will allow airflow between ventilation inlets and outlets. The area of ventilation inlets and outlets must amount to at least 50 cm^2 per every linear metre of the elevation. The ventilation clearance as well as inlets and outlets should be chosen in accordance with relevant building regulations.

2. The supporting substructure

The Wido-Inv aluminium horizontal profiles can be installed on vertical elements of a wooden or aluminium supporting substructure of a sufficient strength and constant durability. The quality and conservation of the structure should obey relevant norms and building regulations.

3. Assembly elements

The hanging brackets are fixed to the façade panels with two assembly fasteners or screws per bracket. Every panel has two moving points. To retain panel position, the panel must have one fixed point at the top by inserting a self-drilling screw (or similar) through the hanging bracket and into the profile.

Alternatively, where access is impossible, each panel must have one glued fixed point (with proprietary adhesive system, e.g. polyurethane).

The Wido-Inv system – invisible mechanical fixing

Wido-Profil

Features:

1. Wido-Inv enables the continuity of works in almost any weather conditions.

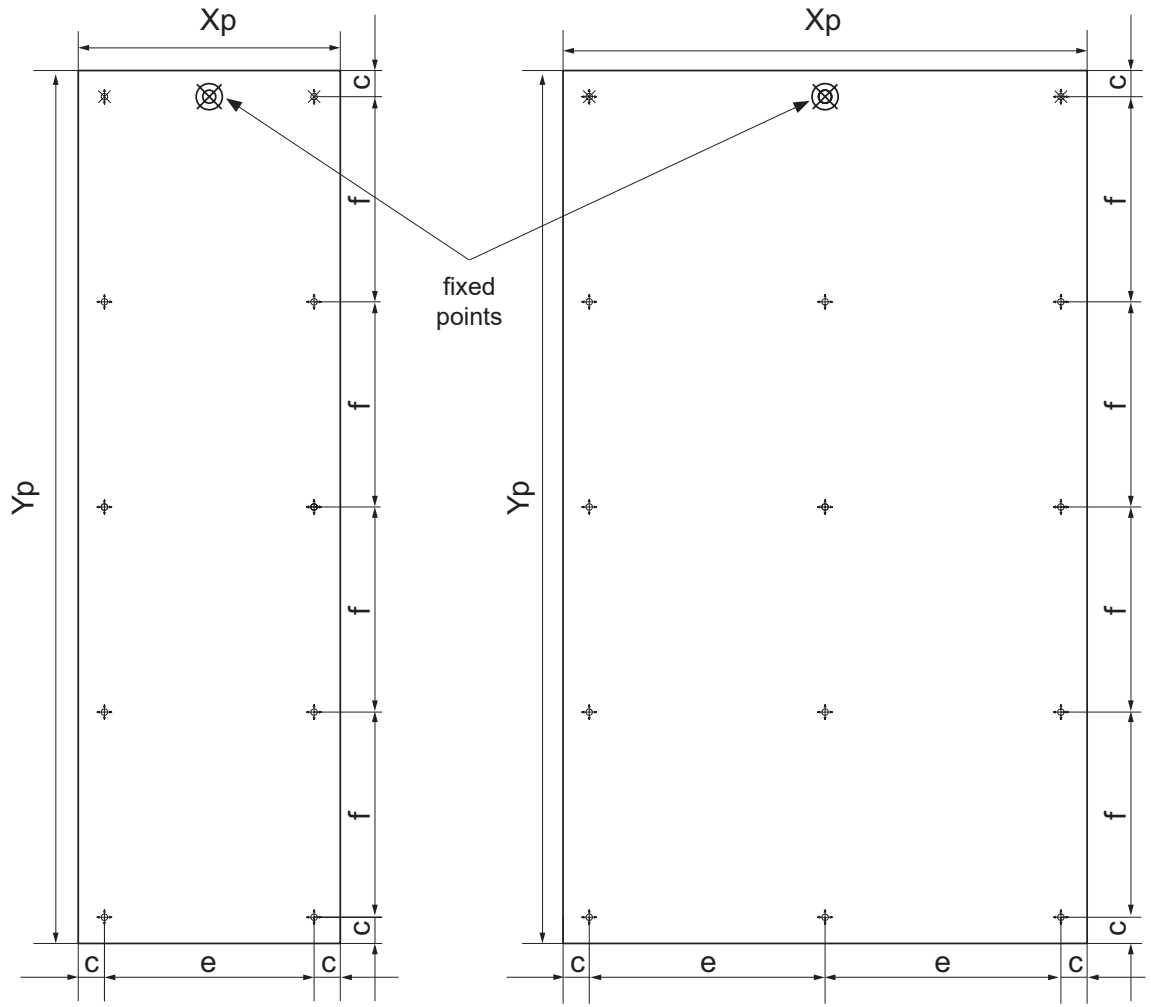
2. The panel producer's guidelines determine the substructure arrangement.

3. T-type profiles, which can support two neighbouring panels, can be used in joint axes.

4. Invisible mechanical fixing can be used for different formats.

Wido-Inv profile spans

Wido-Profil



Legend:

e – distance between fastener axes

f – distance between horizontal fasteners

c – edge clearance

sliding point

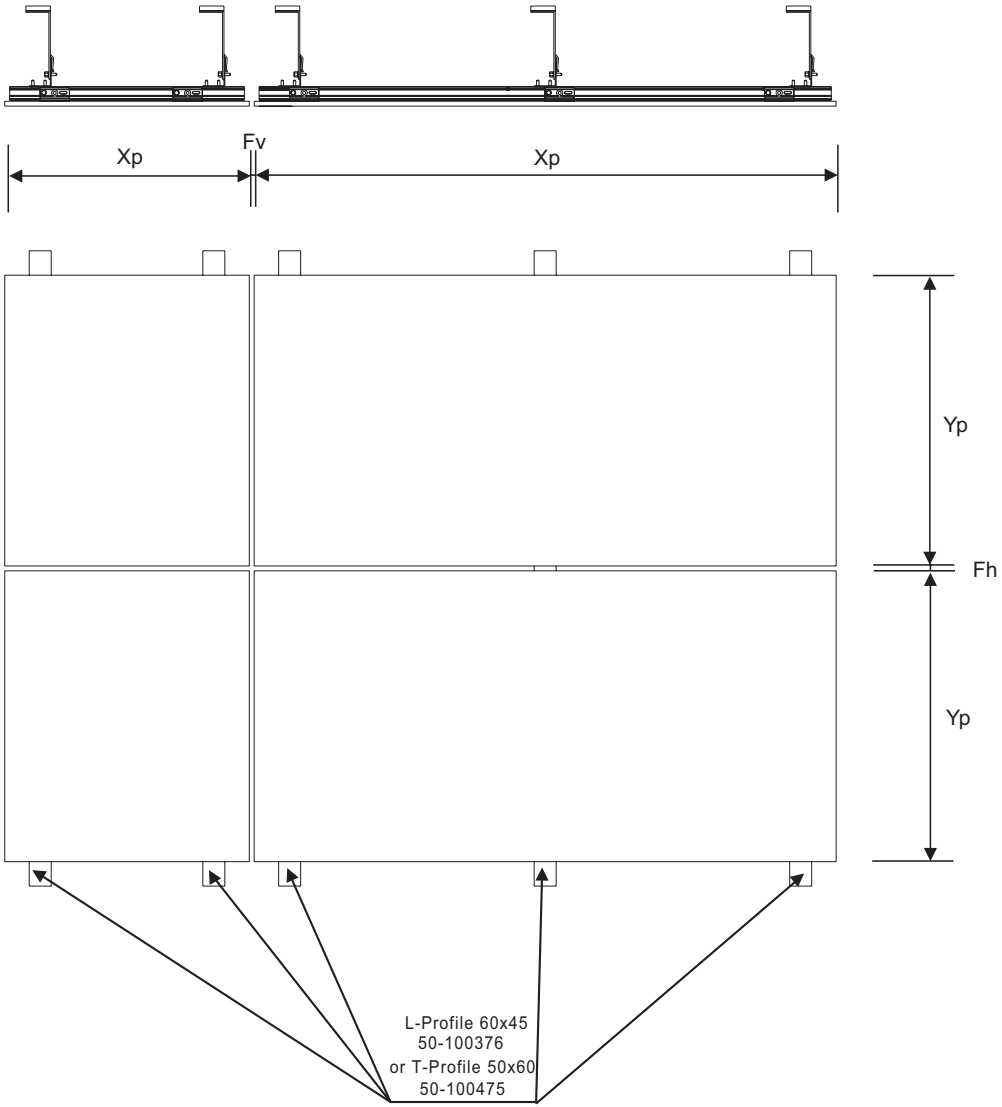
adjusting point

fixed point

Usually, the supporting bracket is a double bracket.

Wido-Inv profile spans

Wido-Profil



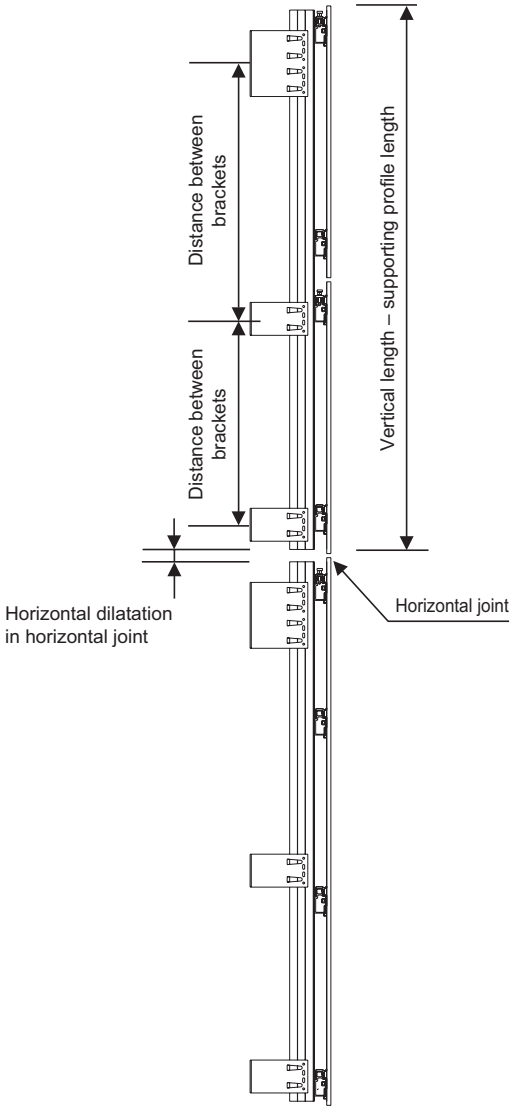
Legend:

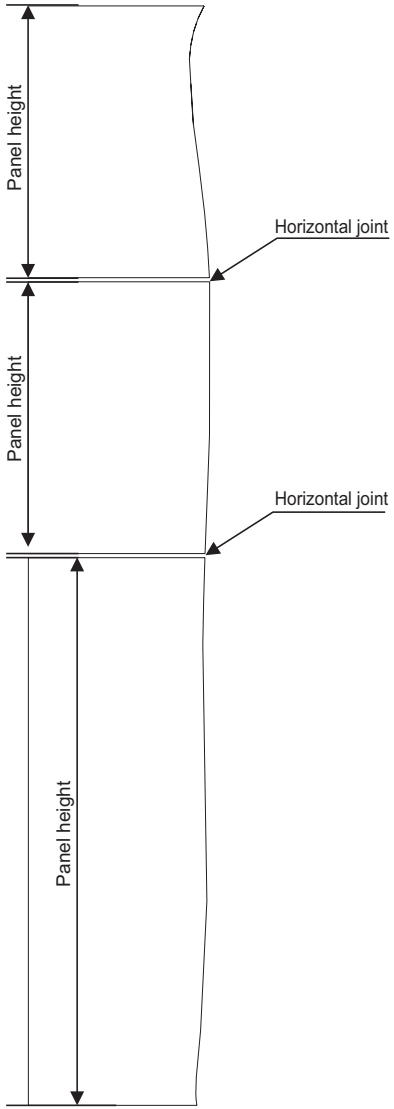
Xp – profile width
Yp – profile height
Fv – vertical joint
Fh – horizontal joint

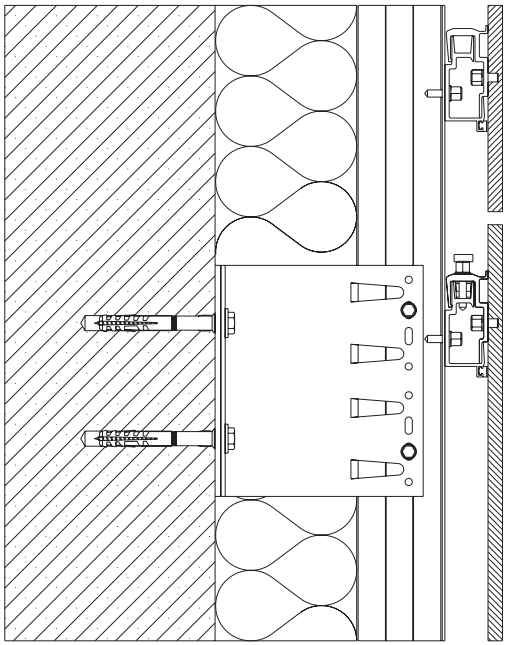
Wido-INV - INVISIBLE FIXING

The Wido-Inv system - Determining vertical lengths of the Wido-Grip substructure

Wido-Profil







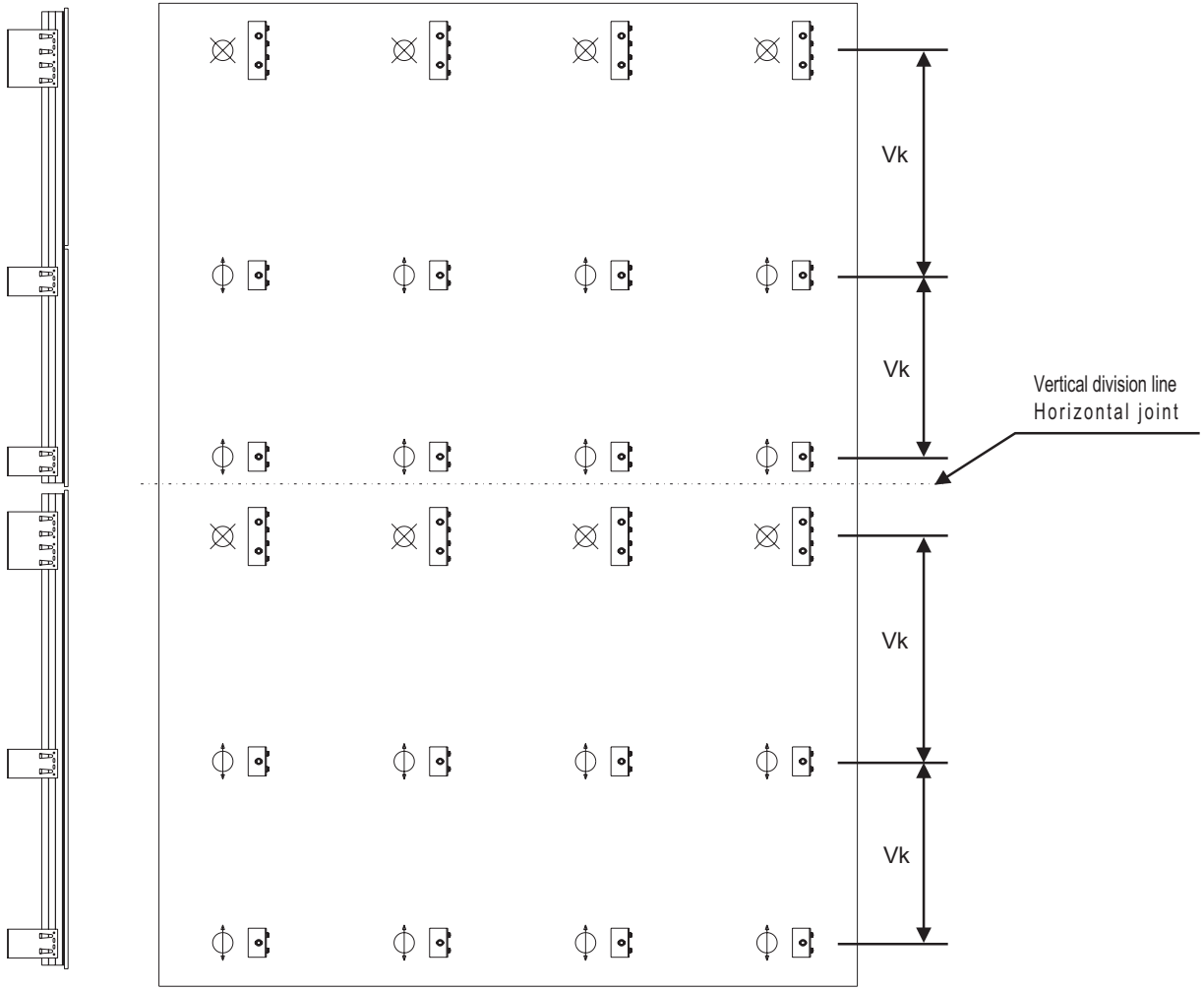
Having determined the panel size, you may proceed with defining the vertical lengths.

Depending on thermal expansion, the profile length may be equal or slightly smaller than the length of one or several panels. Therefore, proper calculations should be made.

Notice: regarding invisible mechanical fixing, the dilatation of the vertical Wido-Grip profile should be made not in the panel height (behind the panel) but between panels within the horizontal joint.

The Wido-Inv system
An exemplary bracket arrangement

Wido-Profil



The axes of vertical profiles and hanging brackets in the invisible mechanical fixing system do not have to overlap.

Legend:

a - distance between vertical profiles

Vk – vertical distances between Wido-Grip bracket axes

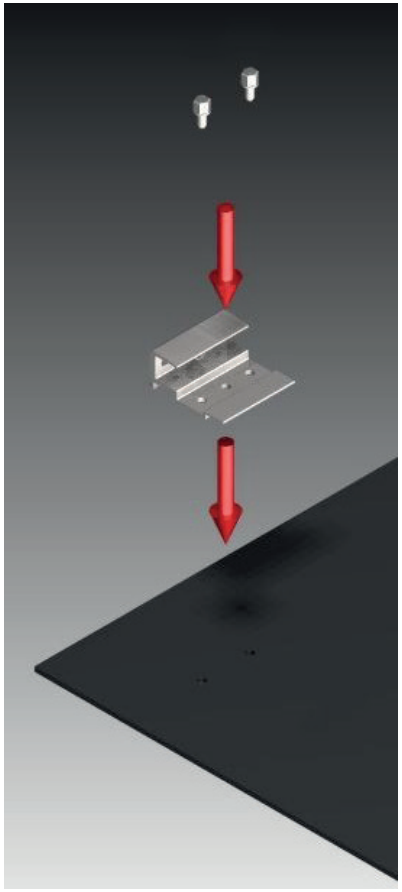
Supporting brackets – fixed points of vertical Wido-Grip profiles

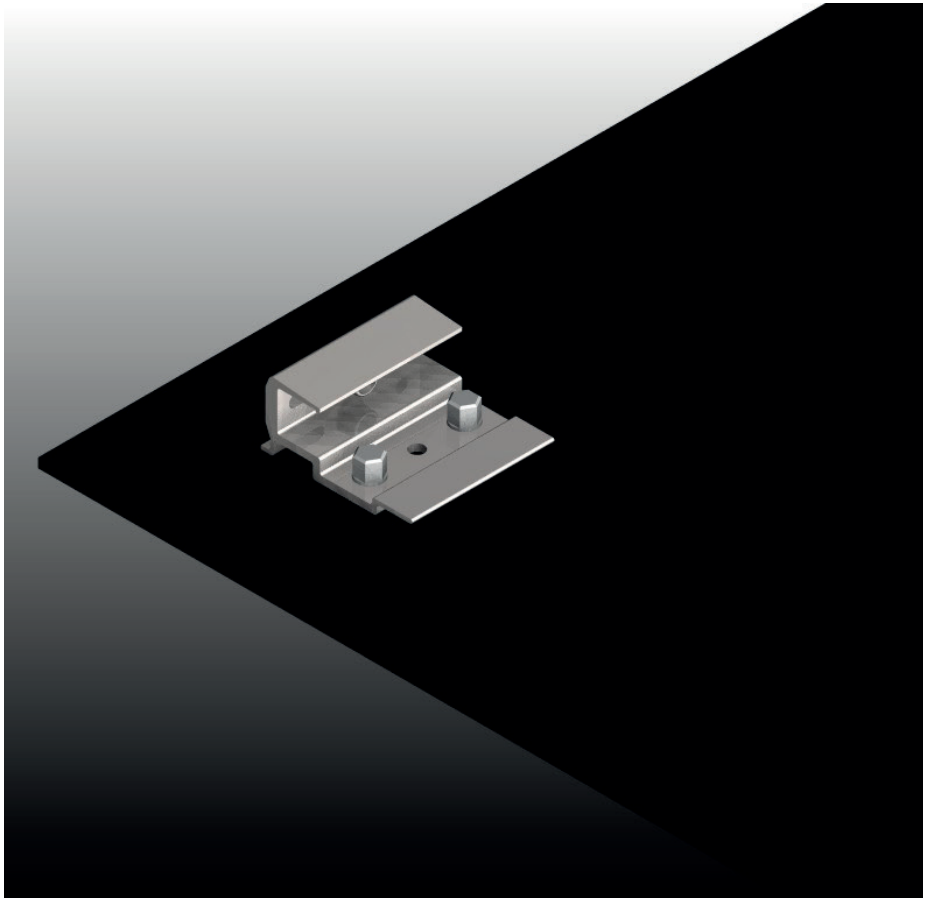
Retaining brackets – moving points of vertical Wido-Grip profiles

Usually, the supporting bracket is a double bracket.

The Wido-Inv system
Assembling hanging brackets to panels

Wido-Profil





The first step of the assemblage is fixing the hanging brackets to panels.

The hanging brackets should be arranged according to the panel producer's guidelines.

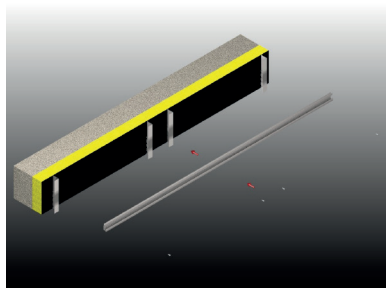
The most important part of preparing the panel is the accurate drilling of an assembly fastener hole.

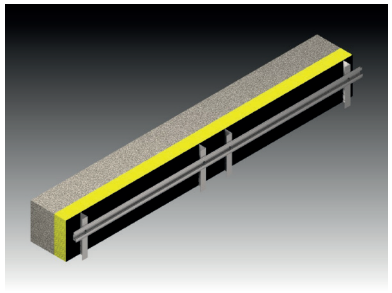
Only CNC machines (or other specialized machines fulfilling the producer's requirements) guarantee the firmness and recurrence of the cutting and pulling strengths affecting the fasteners.

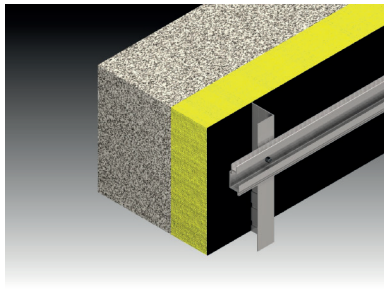
An inaccurately prepared hole may cause the panel to come off the façade.

Assembling Wido-Inv supporting profiles

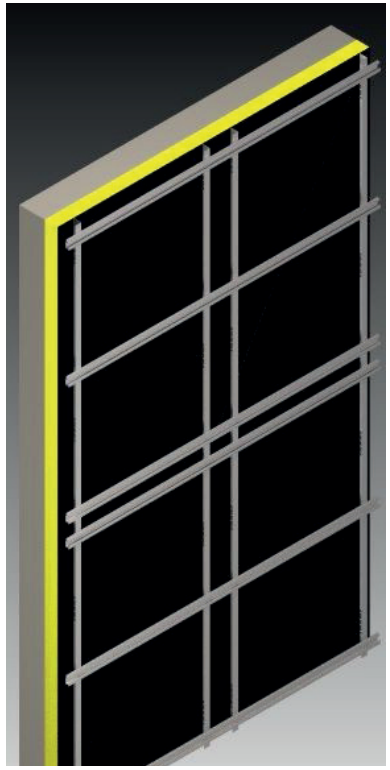
Wido-Profil

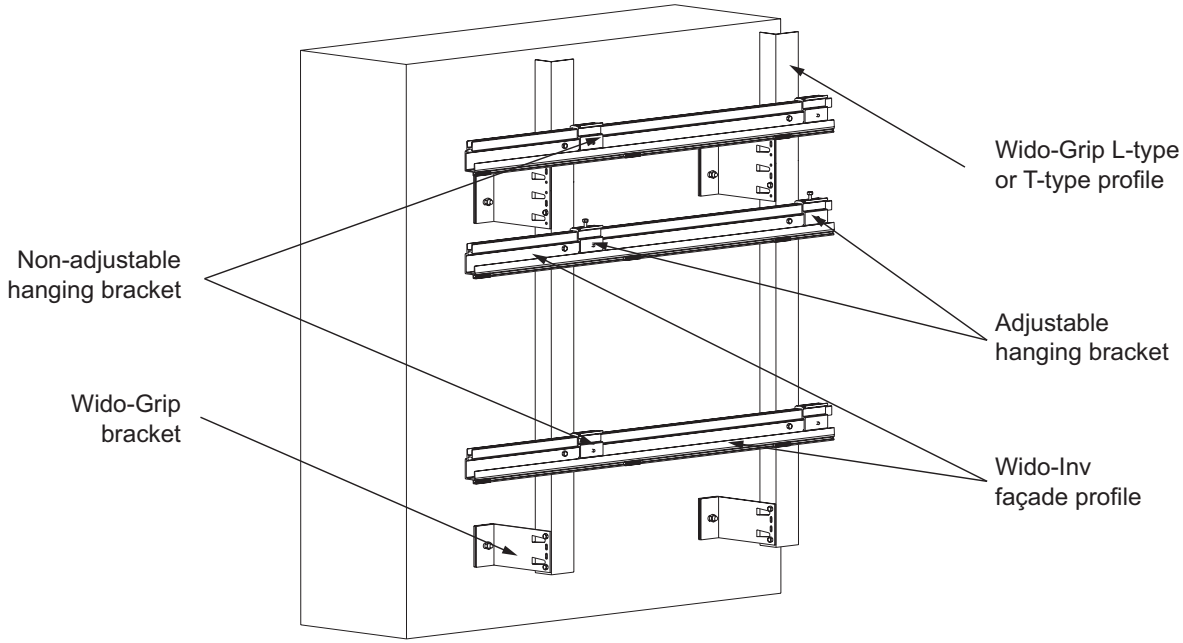






The Wido-Inv façade profiles are fixed horizontally. The arrangement of the profiles depends on the arrangement of the hanging brackets. Usually, the profile is slightly shorter than the panel width; however, it is possible to assemble profiles which are longer than the panels they support. Horizontal assemblage of one profile is easier and more precise than assembling two separate profiles. When the profile is fixed, it is cut.

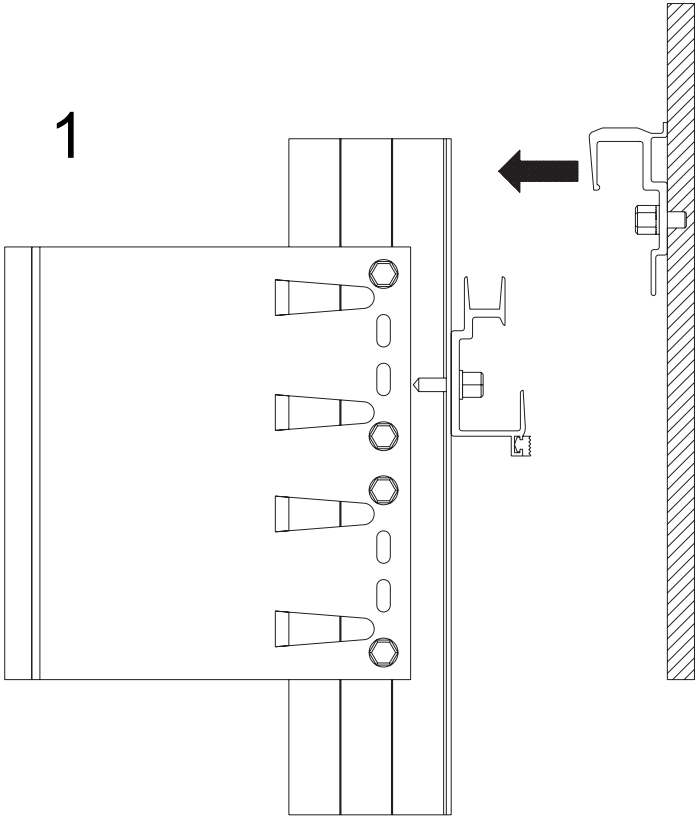




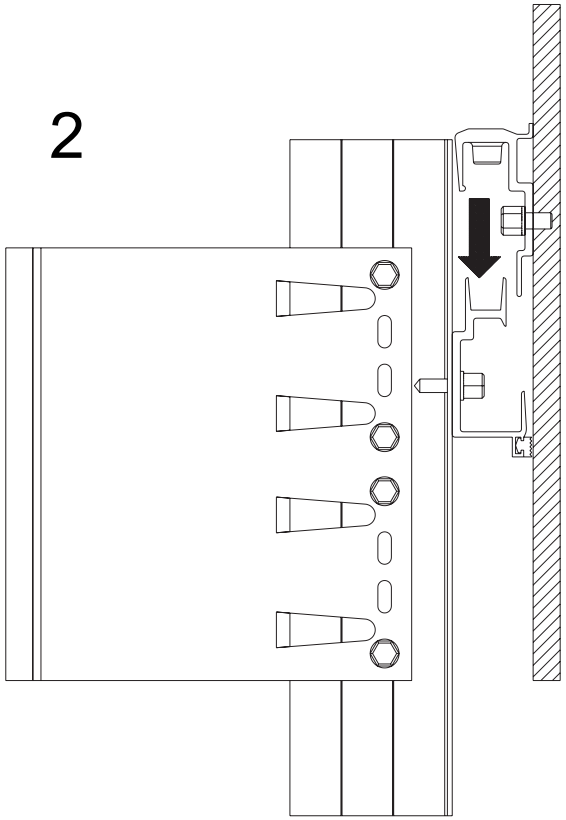
Wido-INV - INVISIBLE FIXING

The Wido-Inv system
Assembling panels

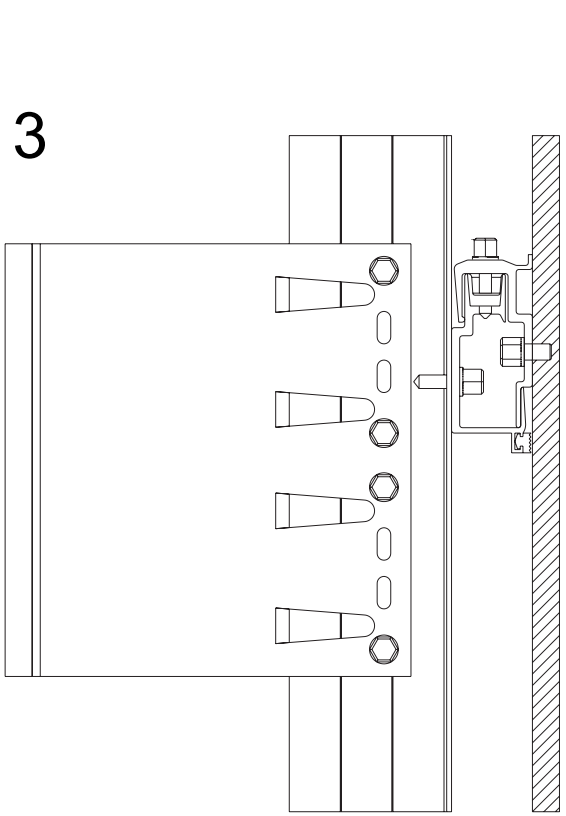
Wido-Profil



Put the panel (with already attached hanging brackets) near the construction wall so that the hanging bracket is over the Wido-Inv profile.



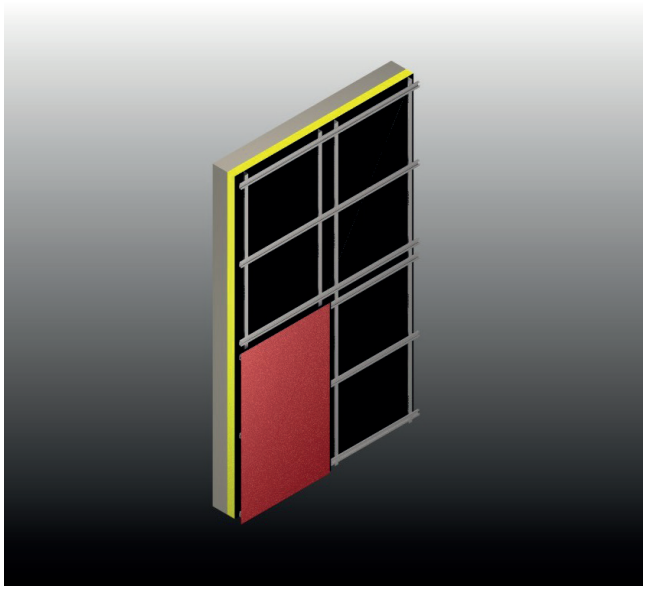
Put the panel on the profile so that the hanging bracket is inserted in the proper element of the profile.

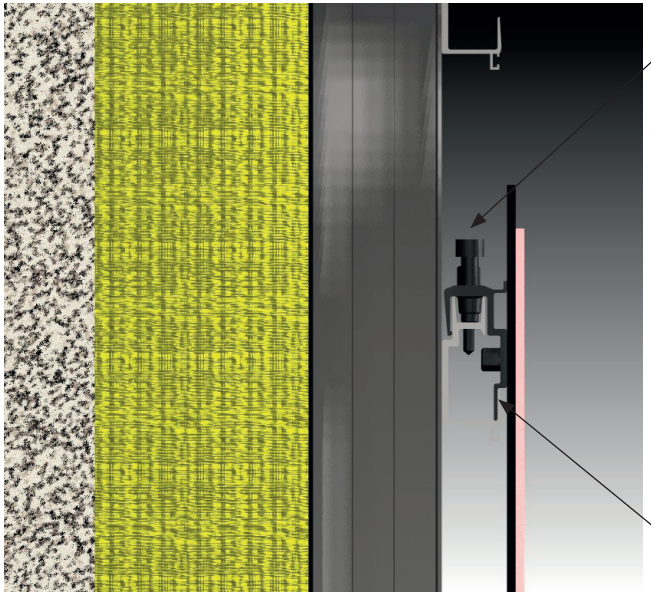


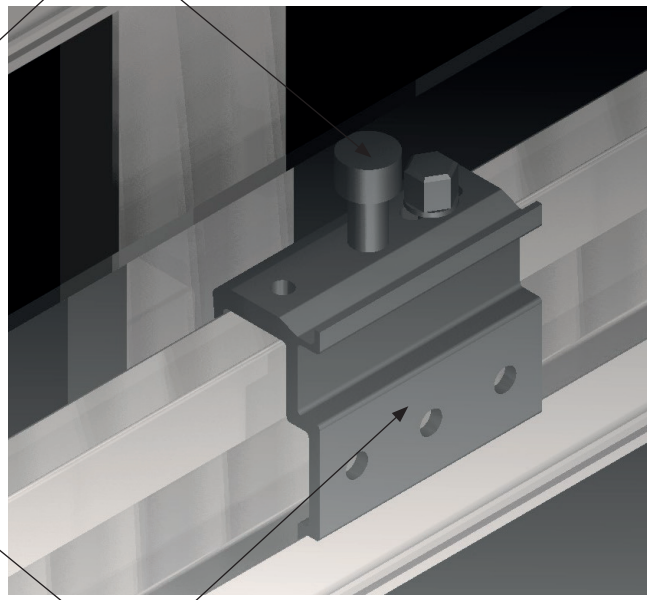
Having placed the panel properly on the profile, tighten the façade screw and adjust the level and height of the panel.

The Wido-Inv system
Assembling panels

Wido-Profil







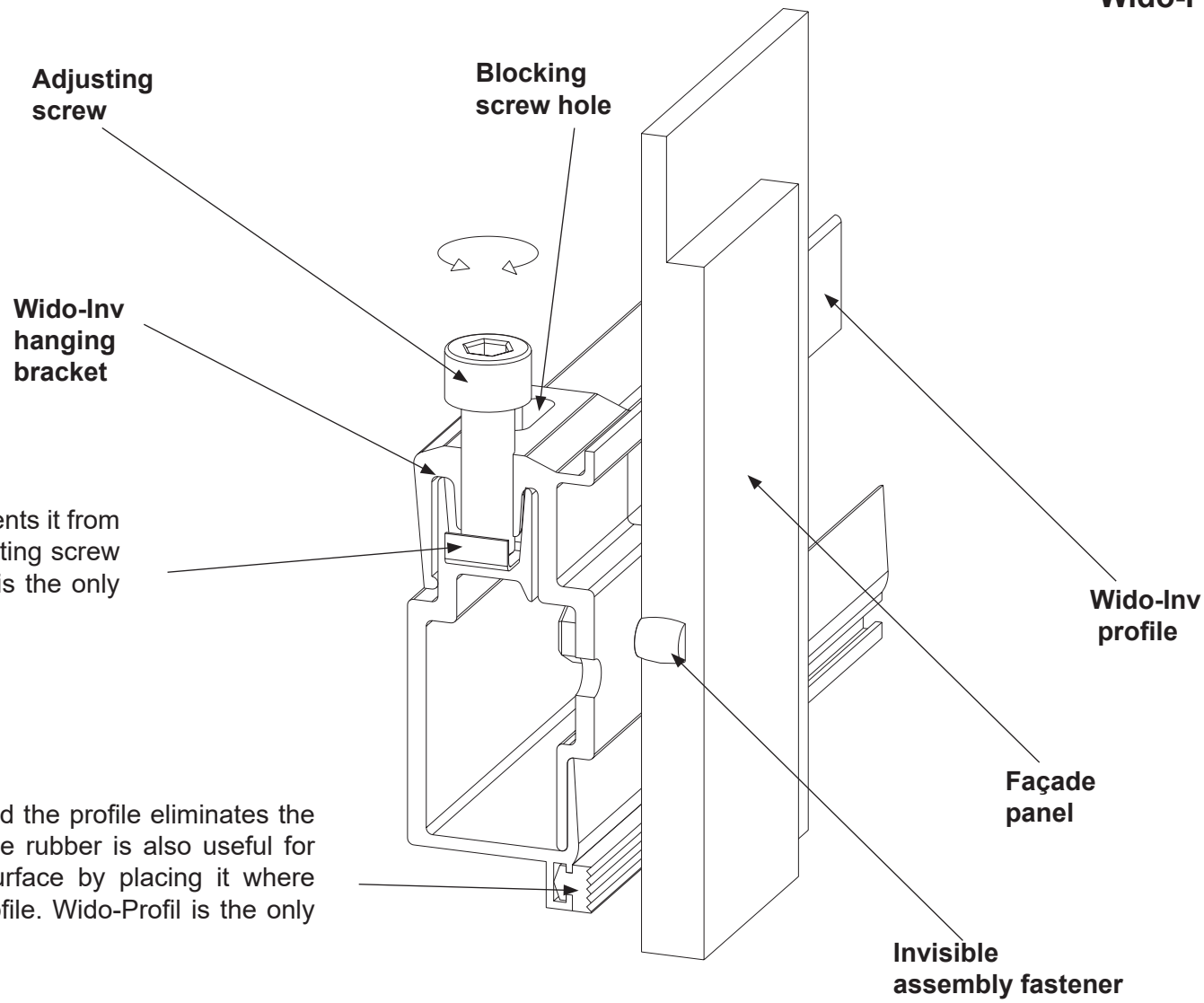
In the Wido-Inv system the assemblage of the panels on a façade goes upwards.

The adjusting screw is accessible until we assemble a panel above the adjusted panel.

After placing the panel on the profile, you can adjust the level and height of the panel. Assembling another panel above makes further adjustment impossible.

The Wido-Inv system
Panel adjustment

Wido-Profil



Sliding metal plate for the adjusting screw

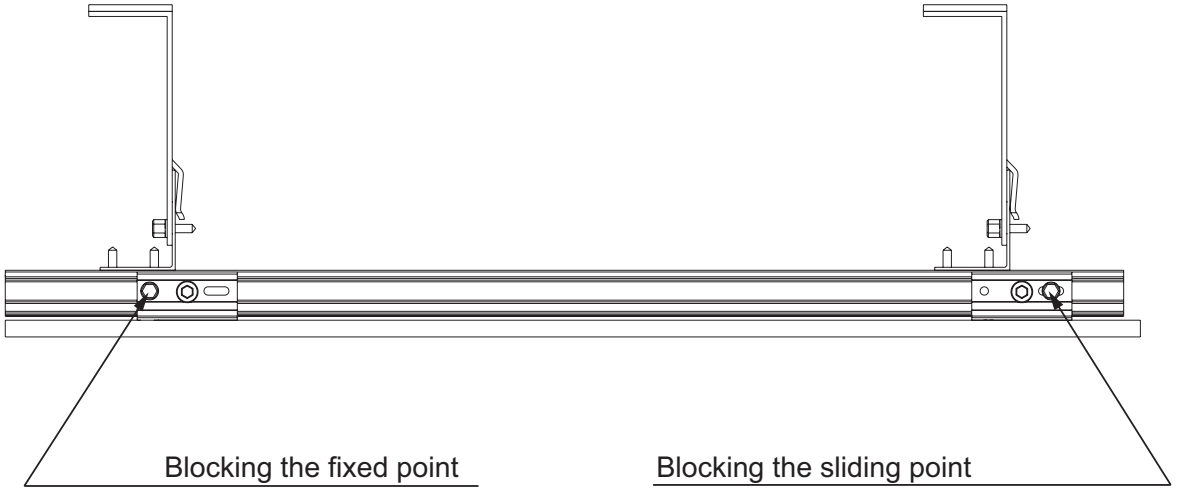
The stainless steel plate under the screw prevents it from hollowing out the aluminium profile. The adjusting screw can move along the profile axes. Wido-Profil is the only supplier of such a system.

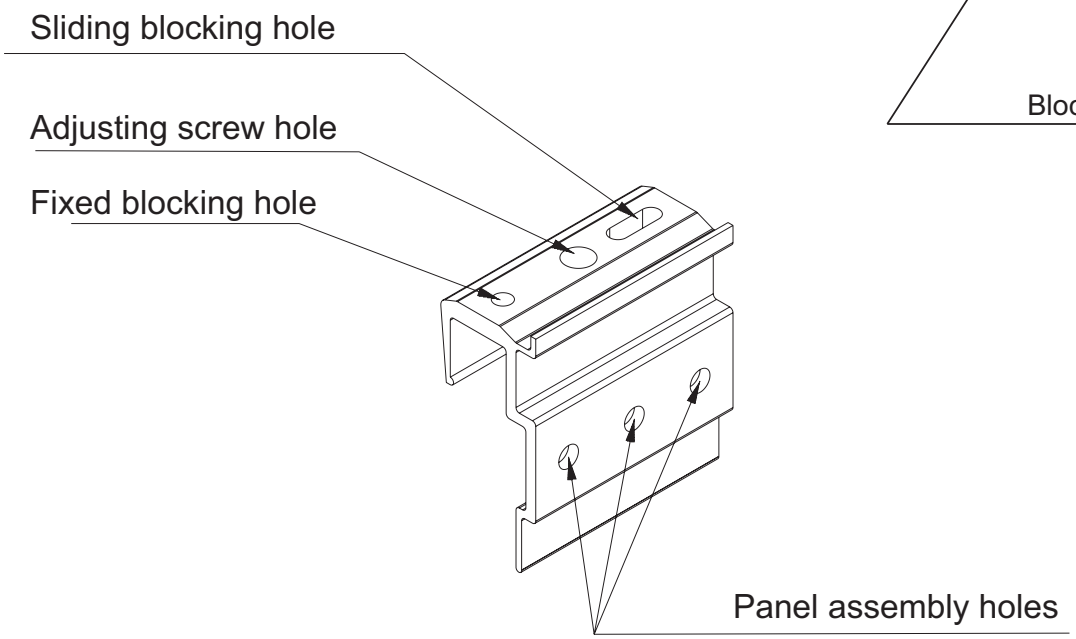
EPDM rubber

Using an EPDM rubber between the panel and the profile eliminates the possible noise caused by wind vibrations. The rubber is also useful for a slight correction of the deformed panel surface by placing it where the panel touches the horizontal Wido-Inv profile. Wido-Profil is the only supplier of such a system.

The Wido-Inv system
Blocking the sliding points

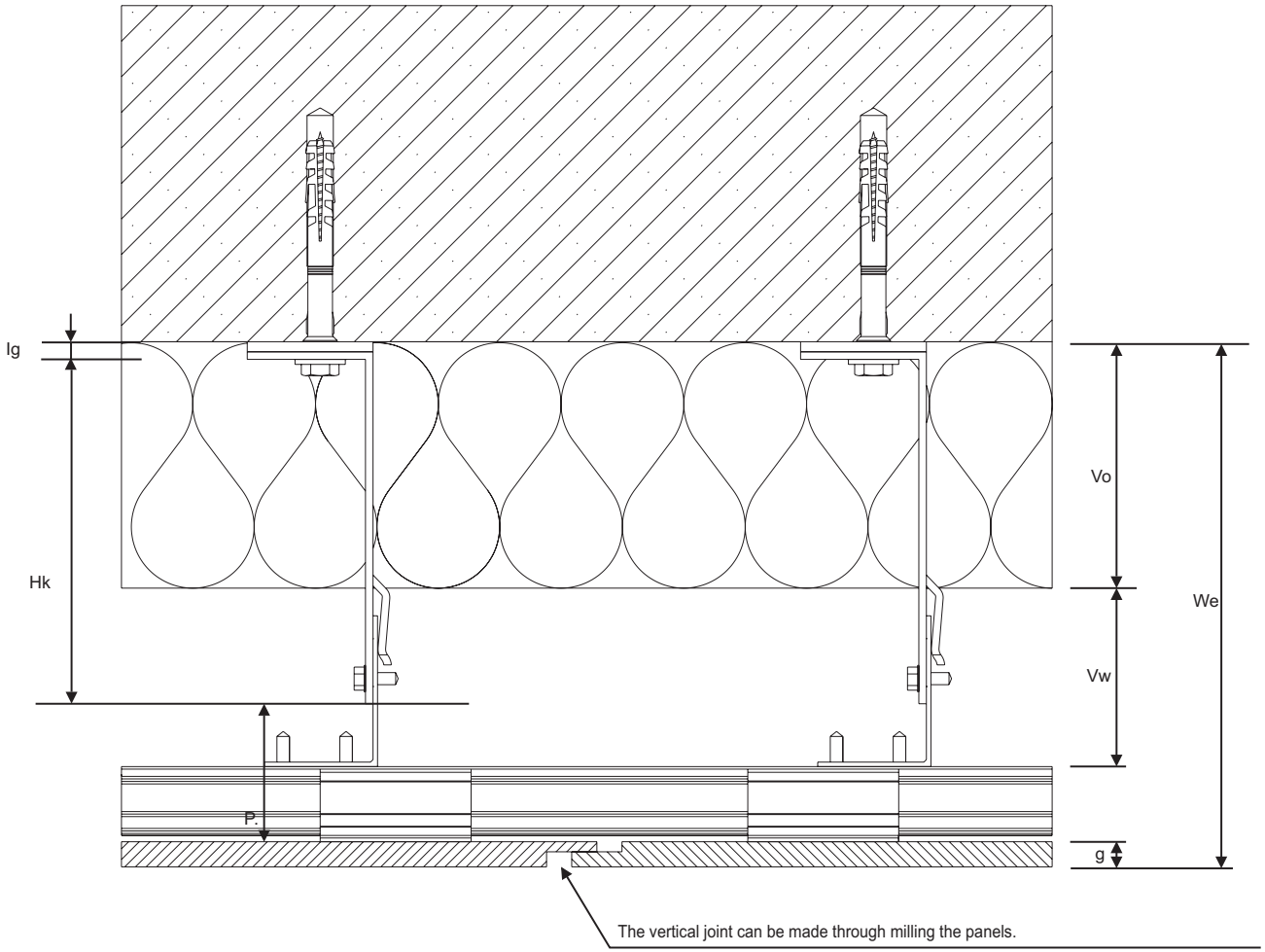
Wido-Profil





The Wido-Inv system
Calculating bracket height on the basis of elevation outreach

Wido-Profil



Elevation outreach is the basic factor determining the height of the bracket. While choosing the bracket, you should consider the unevenness of the surface. The vertical adjustment of the Wido-Grip profiles should be made possible.

Hk = We - (g+P+Ig)

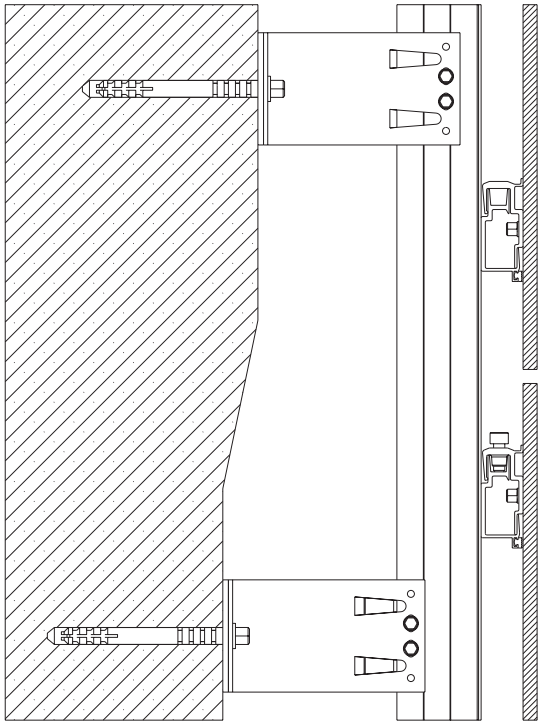
Legend:

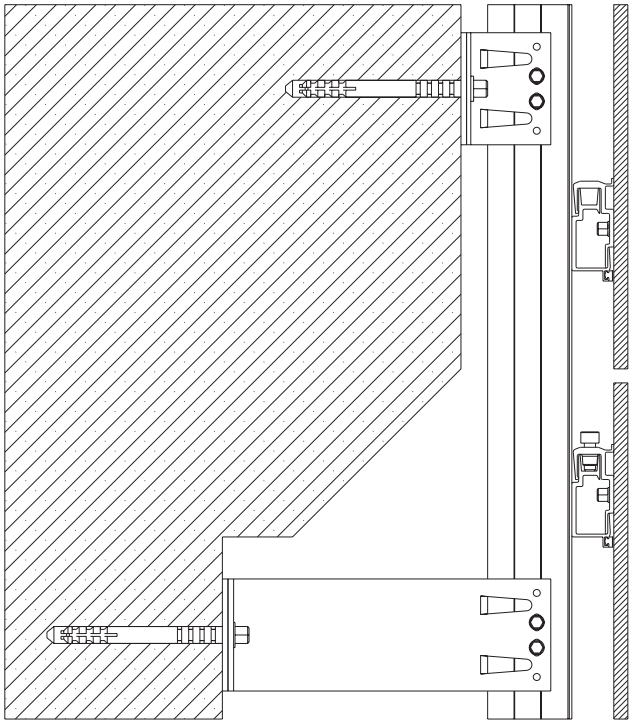
We – elevation outreach
Vo – thermal insulation thickness
Vw – ventilation clearance (minimum 20 mm)
g – panel thickness
P – the height of the substructure between the bracket and the panel
Ig – the thickness of Wido-Grip insulation washer
Hk – the height of Wido-Grip bracket

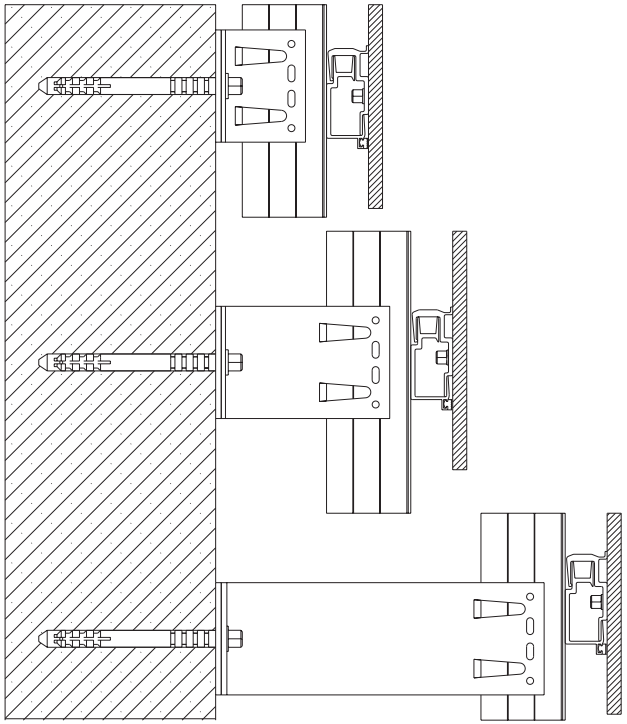
The Wido-Inv system
Levelling the unevenness of the building surface

Wido-Profil

Adjusting façade outreach through the change of bracket size







Adjusting a single bracket

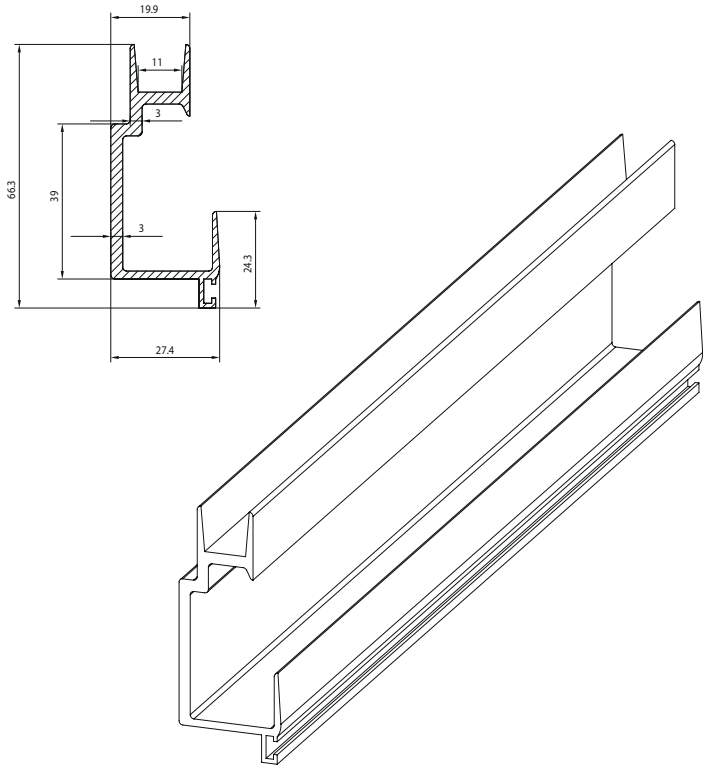
When the adjustment of a single bracket is insufficient, you can exchange the bracket for a smaller or bigger one. Wido-Grip aluminium brackets are produced in the following sizes: 60, 80, 100, 120, 140, 160, 180, 200 and 230 mm.
For greater outreaches, stainless steel brackets or bracket lengthening devices should be used.

Wido-Inv elements

Wido-Profil

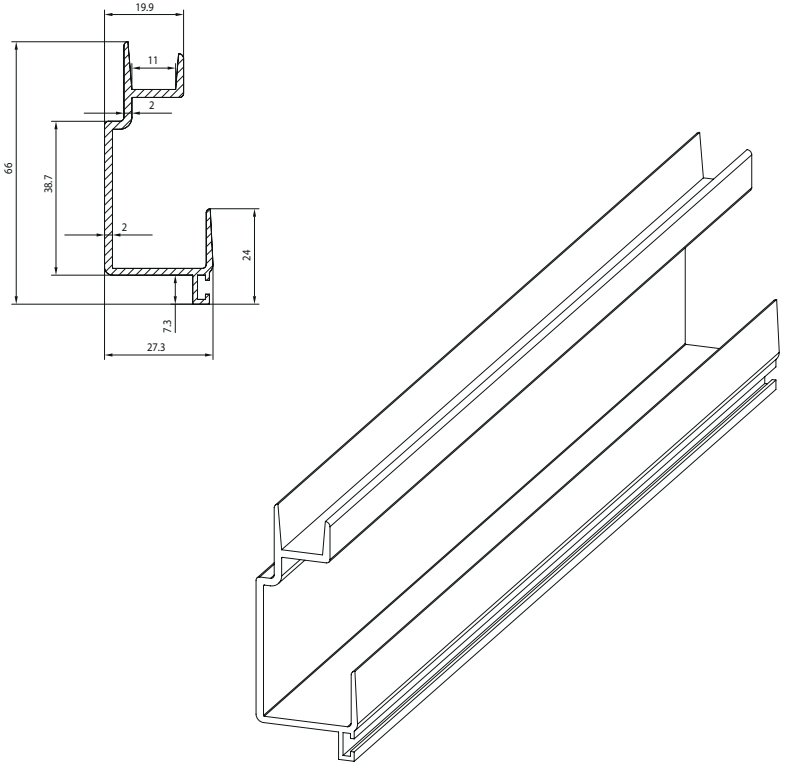
50-100377

Profil fasadowy montażu niewidocznego Wido-Inv – aluminium
Wido-Inv aluminium façade profile
Profilstück für unsichtbare Montage im Wido-Inv – aluminium



50-100508

Profil fasadowy montażu niewidocznego Wido-Inv – aluminium
Wido-Inv aluminium façade profile
Profilstück für unsichtbare Montage im Wido-Inv – aluminium



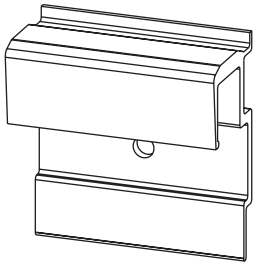
Wido-INV - INVISIBLE FIXING

Wido-Inv elements

Wido-Profil

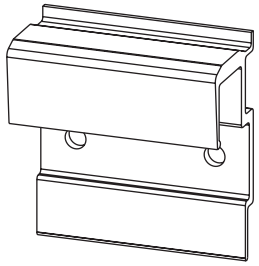
55-100378

Zawieszka Wido-Inv – 60 mm – aluminium
Aluminium hanging bracket – 60 mm
Heftklammer Wido-Inv – 60 mm – aluminium



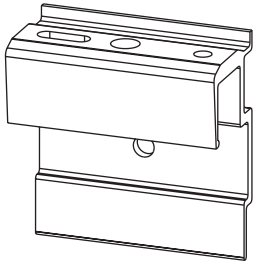
55-100379

Zawieszka Wido-Inv – 60 mm – aluminium
Aluminium hanging bracket 60 mm
Heftklammer Wido-Inv – 60 mm – aluminium



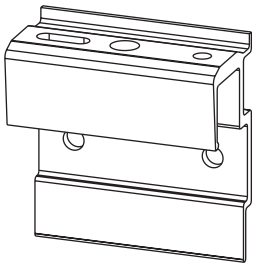
55-100380

Zawieszka z regulacją Wido-Inv – 60 mm – aluminium
Aluminium adjustable hanging bracket – 60 mm
Heftklammer verstellbar Wido-Inv – 60 mm – aluminium



55-100381

Zawieszka z regulacją Wido-Inv – 60 mm – aluminium
Aluminium adjustable hanging bracket 60 mm
Heftklammer verstellbar Wido-Inv – 60 mm – aluminium

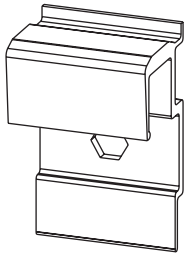


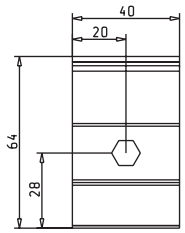
Wido-Inv elements

Wido-Profil

55-100465

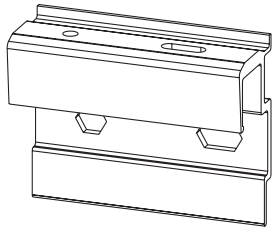
Zawieszka Wido-Inv – 40 mm z otworem sześciokątnym – aluminium
Aluminium hanging bracket with a hexagonal hole – 40 mm
Heftklammer Wido-Inv – 40 mm, Öffnung 6-eckig – aluminium

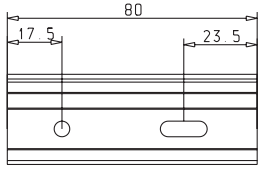


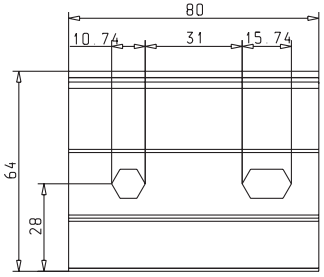


55-100466

Zawieszka z regulacją Wido-Inv – 80 mm – aluminium
Aluminium adjustable hanging bracket – 80 mm
Heftklammer verstellbar Wido-Inv – 80 mm – aluminium

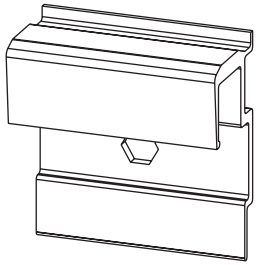


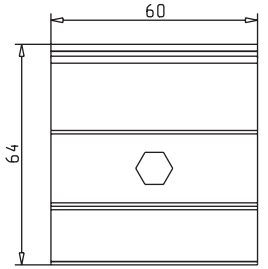




55-100469

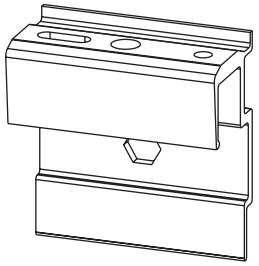
Zawieszka Wido-Inv – 60 mm z otworem sześciokątnym – aluminium
Aluminium hanging bracket with a hexagonal hole – 60 mm
Heftklammer Wido-Inv – 60 mm, Öffnung 6-eckig – aluminium

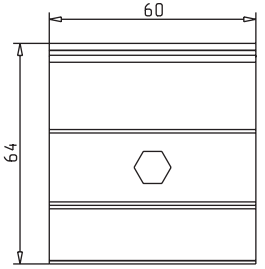




55-100470

Zawieszka z regulacją Wido-Inv – 60 mm z otworem sześciokątnym – aluminium
Aluminium adjustable hanging bracket with a hexagonal hole – 60 mm
Heftklammer verstellbar Wido-Inv – 60 mm, Öffnung 6-eckig – aluminium





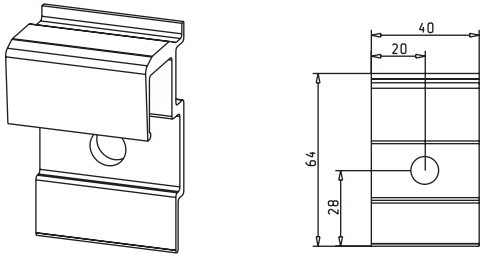
Wido-INV - INVISIBLE FIXING

Wido-Inv elements

Wido-Profil

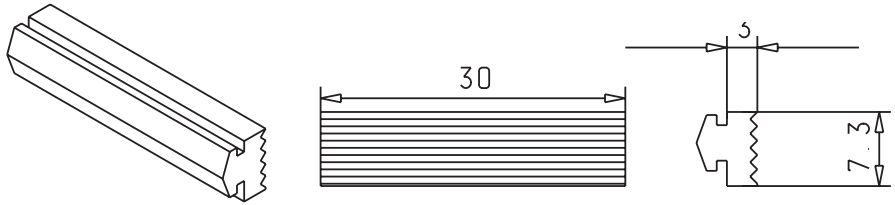
55-100507

Zawieszka Wido-Inv z otworem okrągłym 40 mm – aluminium
Aluminium hanging bracket with a round hole – 40 mm



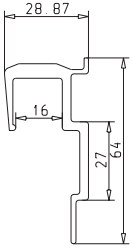
30-600429

Gumka do profili 50-100377 Inv
Rubber for profiles 50-100377 Inv
Gummidichtung für Profilstücke 50-100377 Inv



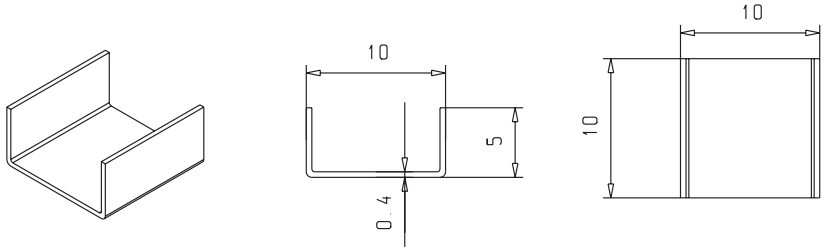
50-100426

Profil zawieszki Wido-Inv – aluminium
Aluminium profile for a hanging bracket
Profilstück Heftklammer Inv – aluminium



30-200445

Blaszka ślizgowa do śruby regulacyjnej – inox
Stainless steel plate for an adjusting screw
Gleit-Blechlamelle für Regelungsklammer – inox



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