BSP | BracketSystem®
Polska

Product catalog

BSP Company presentation

BSP Bracket System Polska Sp. z o.o. is an experienced company offering primarily ventilated facades and glass facades, as well as all other outdoor architectural elements. The company offers complete sub-structure systems and building products intended for fixing facade elements as well as designing, engineering and consulting services.

We have been on the market practically since the beginning of popularity of ventilated facades in Poland. For many years we have been observing how architectural trends change, new technologies and facade materials appear, and how building regulations and requirements are amended. We make efforts to be one step ahead of these changes and ready to offer optimal solutions tailored to current market expectations. We have also recently expanded our business into foreign markets, offering products and design services meeting local standards in individual countries.

We focus on continuous development, product optimization and flexibility in the construction industry. Our goal is to constantly work on our catalog and grow globally.

Content

Balustrades

BSP KB System

SYSTEM VISUALIZATION

The BSP KB system is an aluminum system of indoor and outdoor balustrades offering possibility of various types of infill, including glass, HPL and photo voltaic panels. The system includes the following components:

- aluminum brackets
- vertical mullions
- reinforcement of the mullions
- infill installation low profiles
- profiles for a handle
- Balustrade infill
- Blind window (optional)

The system comes in a number of design variants. We offer two ways of fixing of the balustrades:

- from the face of the balcony slab
- from the top of the balcony slab

In addition, there are three types of low installation of the infill:

- full infill, no blind window
- with an aluminum blind window
- with a blind window with individually selected cladding

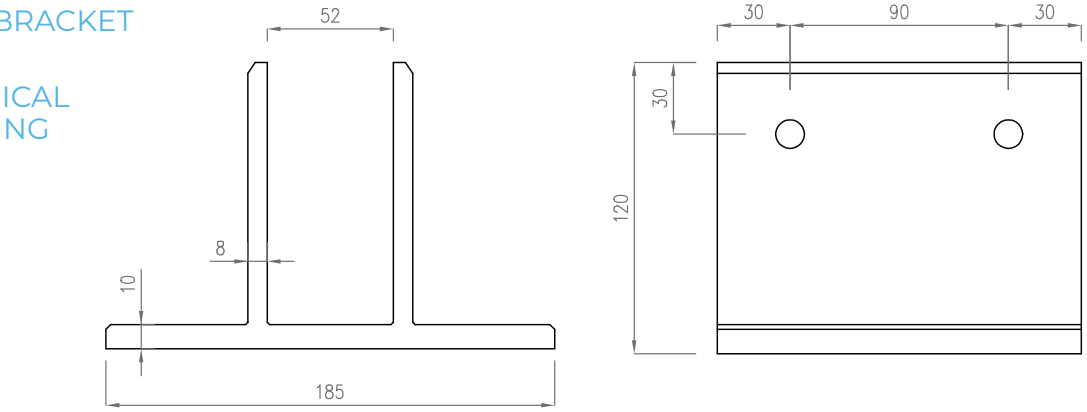
and four types of a handle:

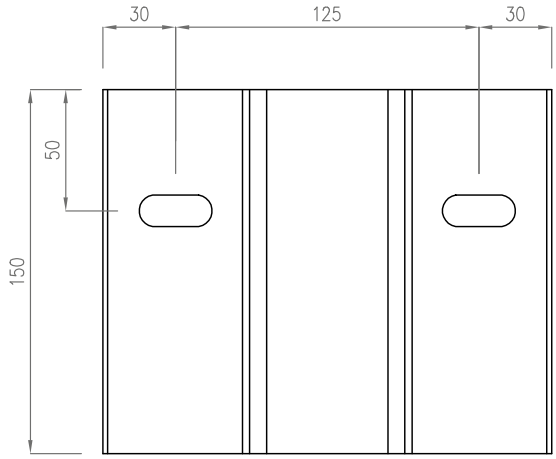
- one-piece, shallow
- one-piece, deep
- two-piece, shallow
- two-piece, deep

KO-01 aluminum brackets are fixed to the face of the balcony slab. They are manufactured from pressed aluminum „Pi" letter shape profiles. Walls of the bracket are sufficiently thick to withstand the increased loads of the balustrade with a mullion spacing equal 1.2 m. Alternatively, KO-01 bracket can be replaced with K1 bracket with a greater overhang.
KO-02 aluminum brackets, on the other hand, are fixed from the top of the balcony panel. They are made from an aluminum base and a welded vertical profile, onto which the vertical mullion of the PR-01 balustrade is slid over.
PR-01 balustrade mullions are 50 x 65 mm in size and fixed in the bracket arms by means of screws, similarly to the mullion & transom facade system.

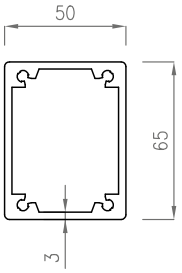
KO-01 BRACKET

TECHNICAL DRAWING



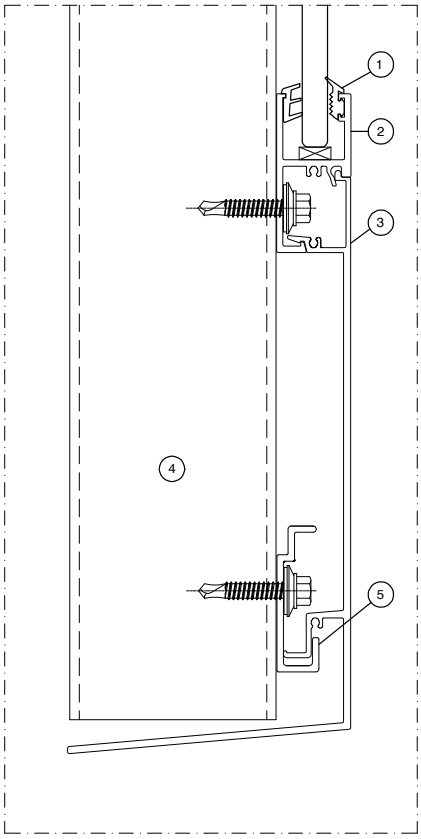


PR-01 PROFILE



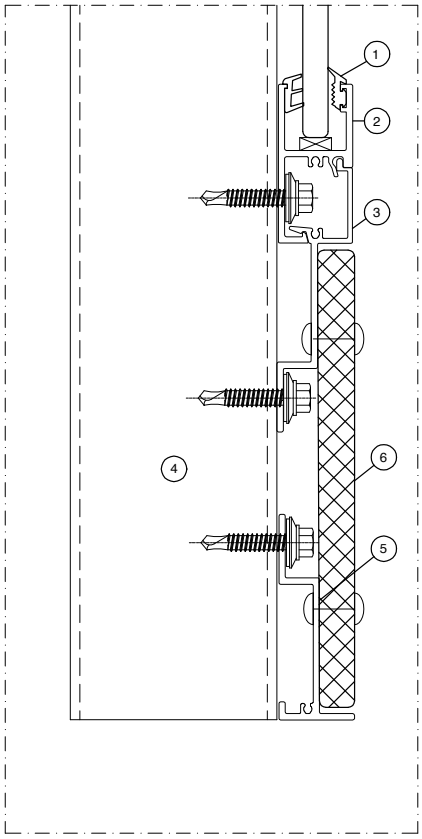
TECHNICAL DETAILS

Low installation with aluminum blind window



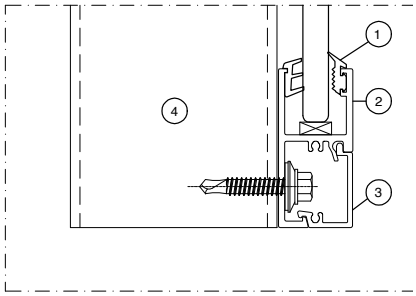
1. Gasket
2. Low installation BSP MS-01
3. Masking blind window BSP MB-01
4. Vertical mullion PR-01
5. BSP MB-02 low installation of the blind window

Low installation with a board blind window



1. Gasket
2. Low installation BSP MS-01
3. High installation BSP MP-01
4. Vertical mullion PR-01
5. Low installation of the blind window BSP MP-02 6. Blind window

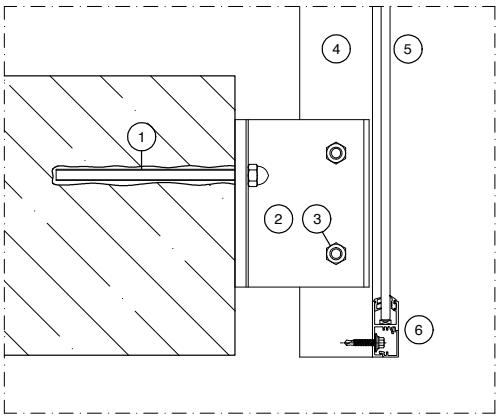
Low installation without a blind window



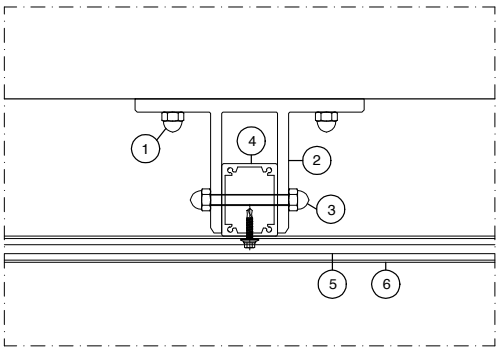
1. Gasket
2. Low installation BSP MS-01
3. Masking frame BSP MS-02
4. Vertical mullion PR-01

TECHNICAL DETAILS

Vertical detail



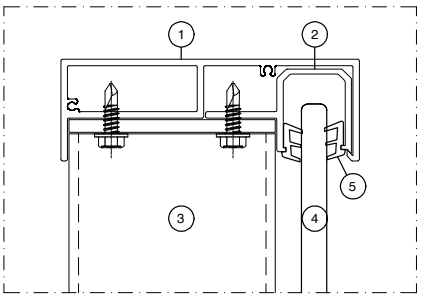
Horizontal detail



Top fixing element of the balustrade infill, which also stands for the balustrade railing, is available as one- or two-part version. In case of a two-part fastening, first a P-05 profile is installed, equipped with a slot with seals, constituting the top fastening of the balustrade infill. Next, a second covering profile P-03 or P-04 is fastened to this profile, forming the visible part of the balustrade's railing. An advantage of this solution is that the balustrade infill can be fixed long before the decorative part of the balustrade railing, which can be ordered at the final stage of installation, after the scaffolding has been dismantled. This avoids exposing the decorative part to mechanical damage.

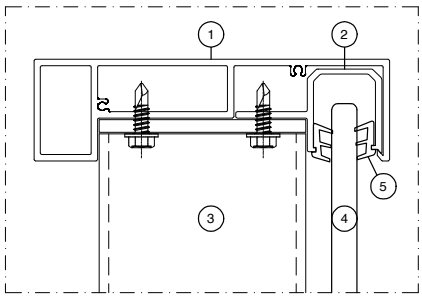
1. Fixing anchor
2. BSP bracket KO-01
3. Fixing bolt
4. Vertical mullion PR-01
5. Balustrade infill
6. Low fixing of the infill

Two-piece shallow railing



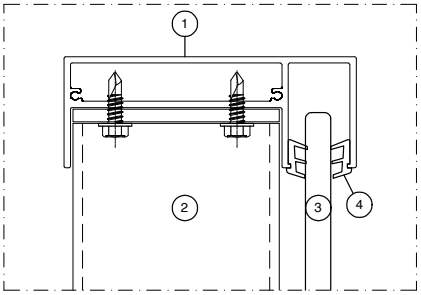
1. BSP P-03 railing
2. Fastening profile BSP P-05
3. Vertical mullion PR-01
4. Balustrade infill
5. Gasket

Two-piece deep railing



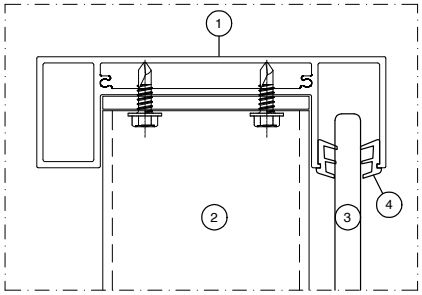
1. BSP P-03 railing
2. Fastening profile BSP P-05
3. Vertical mullion PR-01
4. Balustrade infill
5. Gasket

One-piece shallow railing



1. Handrail BSP P-02
2. Vertical mullion PR-01
4. Gasket
3. Balustrade infill

One-piece deep railing



1. Handrail BSP P-02
2. Vertical mullion PR-02
4. Gasket
3. Balustrade infill

Glass facades

GLASS FACADE BRACKETS

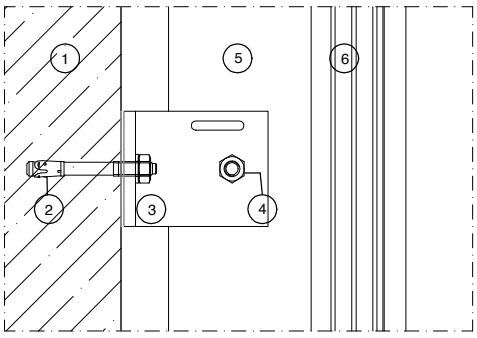
Glass facades, which pose curtain walls (in other words curtain walls), are the element of outdoor architecture getting the most attention of architects, designers and other participants in the design process. They gained popularity a long time ago and are currently used in many different types of buildings, but especially on high office buildings. Curtain walls are non-load-bearing partitions that serve a shielding, aesthetic and insulating function. They only transfer their own weight, wind pressure and suction, without taking part in the transfer of loads from the main part of the building. Glass facades are most often offered in a mullion & transom and segment technologies

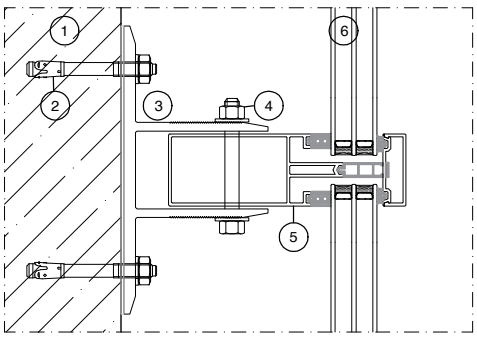
BSP K1 brackets

BSP K1 aluminum brackets are a standard component for fixing mullion & transom facades. Facade profile is installed in the bracket arms by means of screws. There exist FIX load-bearing brackets - transferring both horizontal forces (suction and wind pressure) and vertical forces (weight of the facade) - and LOS wind brackets - transferring only horizontal forces. The brackets differ in terms of holes and, in many cases, also height. Wind brackets have longitudinal holes for fixing the mullions, providing free thermal expansion of the facade, while load-bearing brackets have a small longitudinal hole intended for temporary fixing of the mullion and marking of its proper plane - and a circular hole for final fixing of the mullion. K1 brackets come in a number of different dimensional variants shown in the table.

BSP K1 brackets

TECHNICAL DETAILS

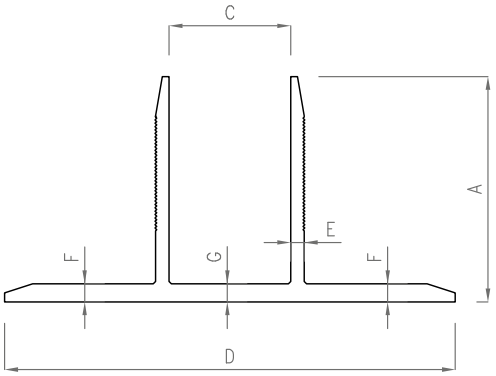




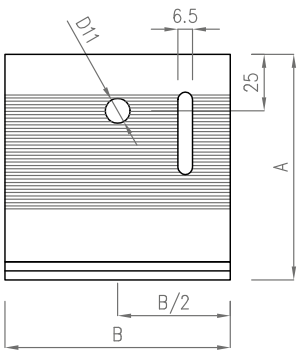
1. Building structure
2. Fixing anchor
3. BSP K1 bracket
4. Fixing screw
5. Facade profile
6. Glass

DIMENSIONS OF THE BRACKETS							
BRACKET	A	B	C	D	E	F	G
K1/100-80	100	80	54	200	6	8	8
K1/100-100	100	100	54	200	6	8	8
K1/100-120	100	120	54	200	6	8	8
K1/100-150	100	150	54	200	6	8	8
K1/120-80	120	80	54	200	6	8	8
K1/120-100	120	100	54	200	6	8	8
K1/120-120	120	120	54	200	6	8	8
K1/120-150	120	150	54	200	6	8	8
K1/160-80	160	80	62	180	6	8	5
K1/160-100	160	100	62	180	6	8	5
K1/160-120	160	120	62	180	6	8	5
K1/160-150	160	150	62	180	6	8	5
K1/180-80	180	80	62	205	10	12	12
K1/180-100	180	100	62	205	10	12	12
K1/180-120	180	120	62	205	10	12	12
K1/180-150	180	150	62	205	10	12	12
K1/200-80	200	80	54	180	6	8	5
K1/200-100	200	100	54	180	6	8	5
K1/200-120	200	120	54	180	6	8	5
K1/200-150	200	150	54	180	6	8	5

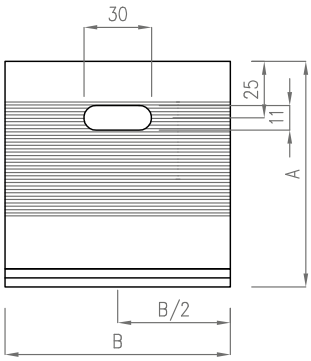
TECHNICAL DRAWING

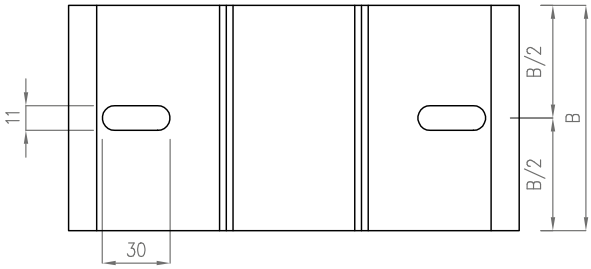


FIX



LOS





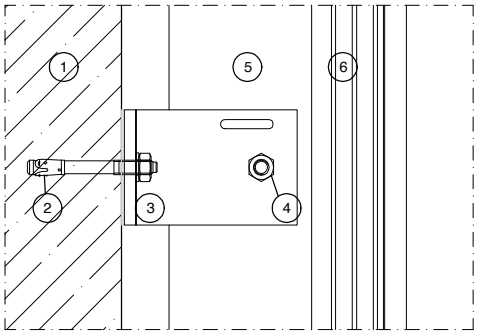
VISUALIZATION

BSP K2 brackets

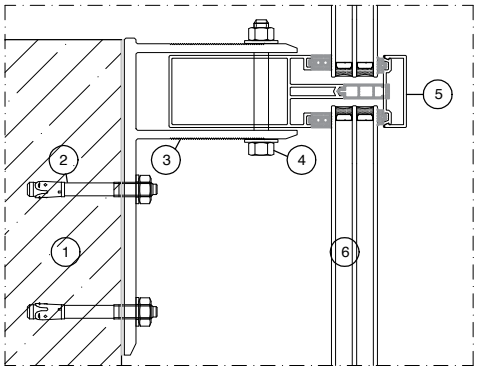
BSP K2 aluminum brackets are most often used to fix mullion and transom facades in the corners of a building or at the extremes of the facade. Shape of the brackets and the arrangement of holes for anchors enable installation of the mullion as close as possible to the edge of the facade. These brackets are also used at building expansion joints. As in the case of K1 brackets, we have FIX load-bearing brackets and LOS wind brackets. They differ in terms of the holes for fixing the profiles.

DIMENSIONS OF THE BRACKETS		
BRACKET	A	B
K2/100-80	100	80
K2/100-100	100	100
K2/100-120	100	120
K2/100-150	100	150
K2/120-80	120	80
K2/120-100	120	100
K2/120-120	120	120
K2/120-150	120	150

TECHNICAL DETAILS

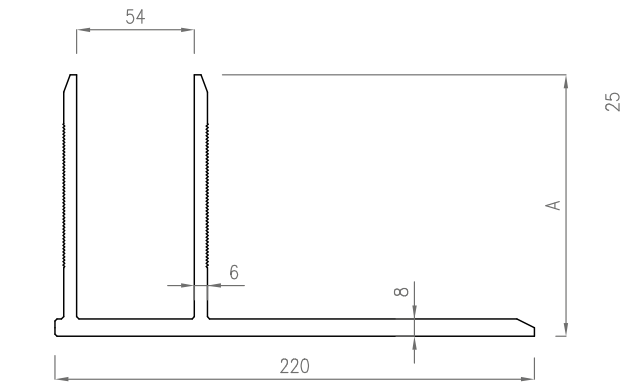


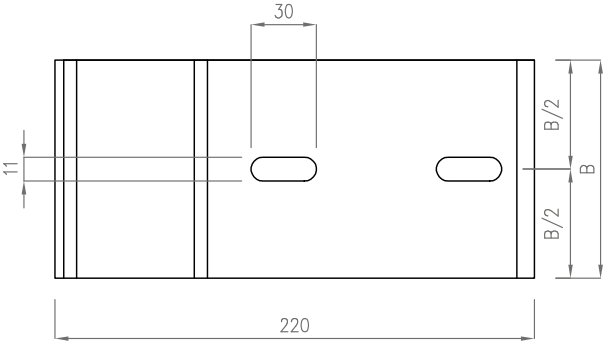
1. Structure of a building
2.Fixing anchor
3.BSP K2 bracket
4.Fastening screw
5.Facade profile
6.Glass



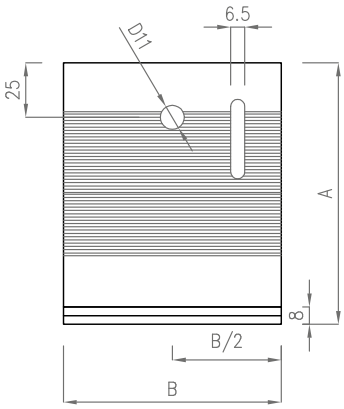
VISUALIZATION

TECHNICAL DRAWING

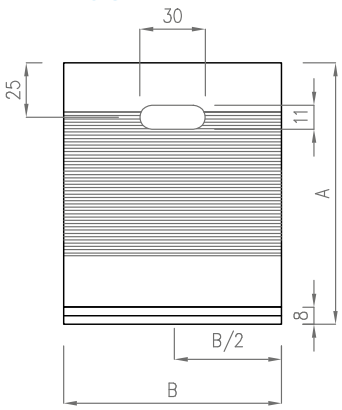




FIX



LOS

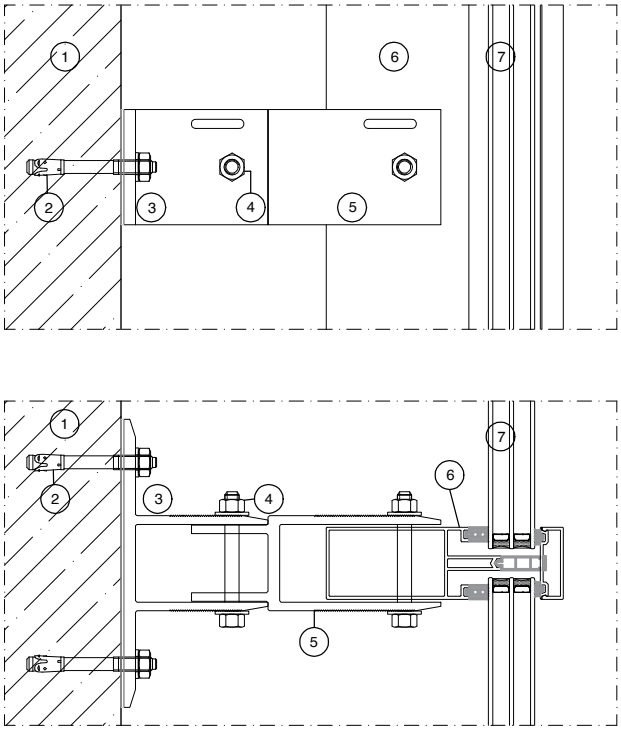


BSP KP1 brackets

BSP KP1 aluminum brackets, also called extensions, pose an additional element fixed to K1 or K2 brackets to increase the facade overhang. They are most frequently used where there are local faults in the building structure so as to maintain a single facade plane. As in case of K1 brackets, there are FIX load-bearing brackets and LOS wind-bearing brackets with different holes for fixing of profiles.

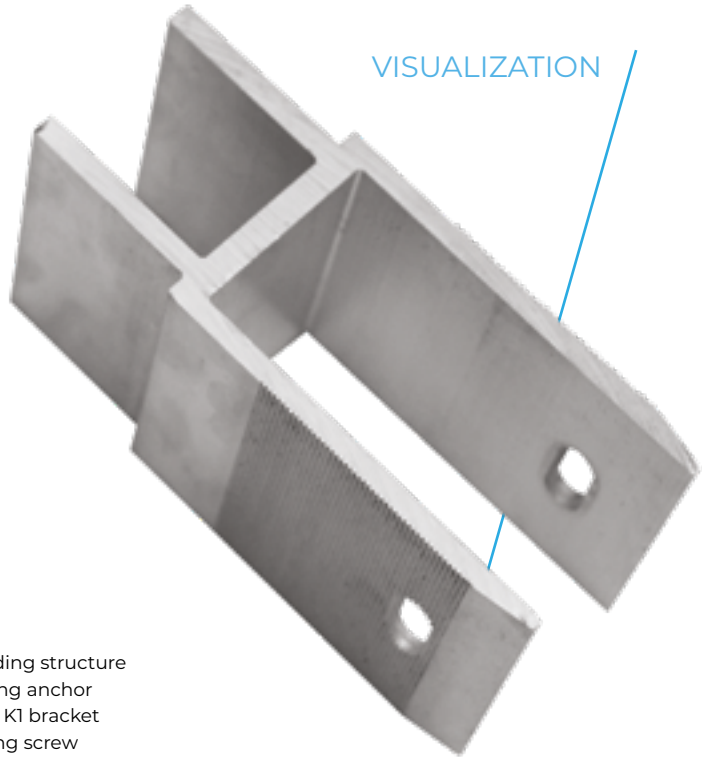
DIMENSIONS OF THE BRACKETS	
BRACKET	B
KP1/173-80	80
KP1/173-100	100
KP1/173-120	120
KP1/173-150	150

TECHNICAL DETAILS



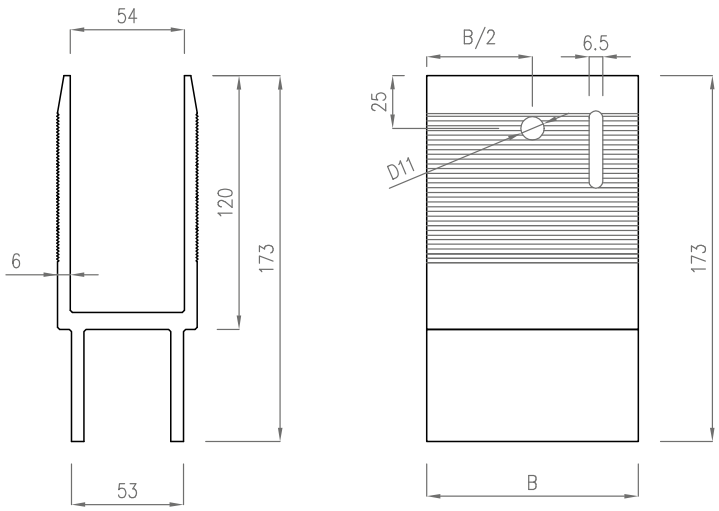
1. Building structure
2. Fixing anchor
3. BSP K1 bracket
4. Fixing screw
5. BSP KP1 extension
6. Facade profile
7. Glass

VISUALIZATION

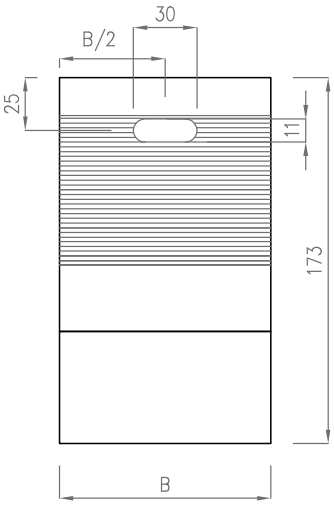


TECHNICAL DRAWING

FIX



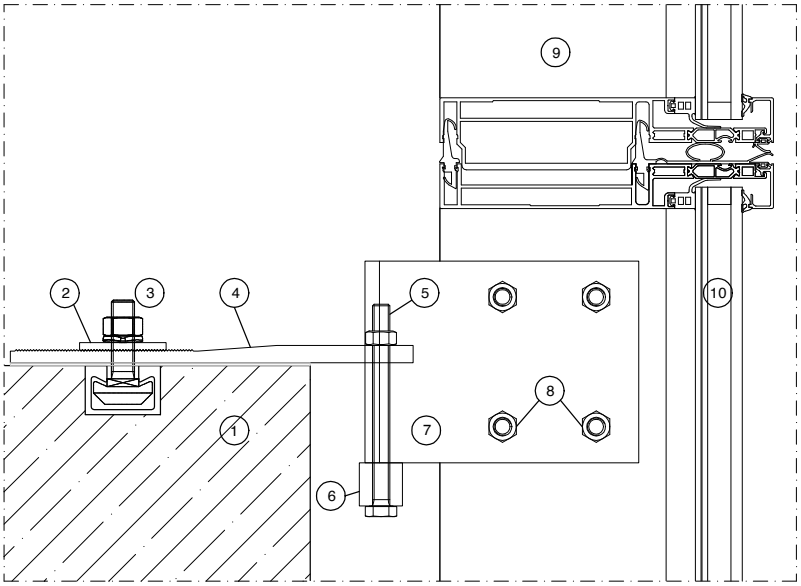
LOS



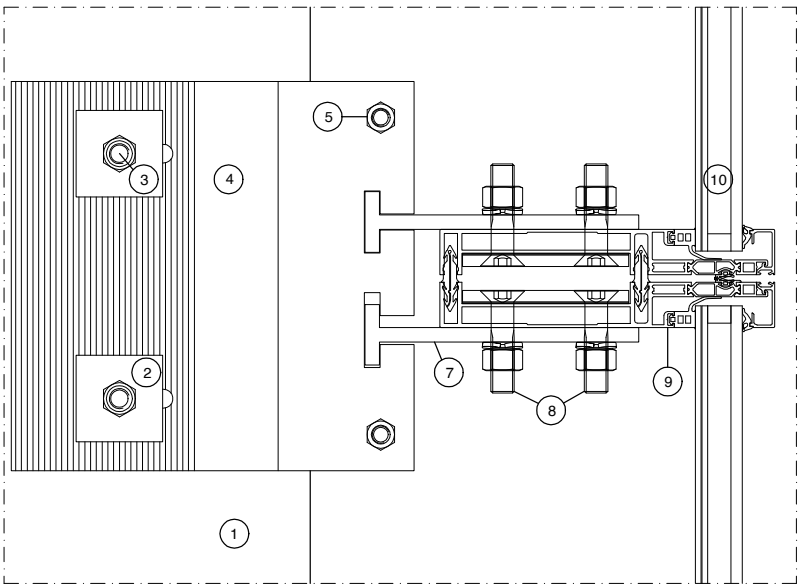
BSP KE1 SEGMENT brackets

BSP KE1 aluminum brackets are used for installation of glass segment facades. A bracket is fixed to the ceiling from the top, enabling the installation process from inside of the building without the need for scaffolding. It is recommended to use a mounting rail sunk in the ceiling, which the brackets are fixed to by means of hammer bolts.

TECHNICAL DETAILS

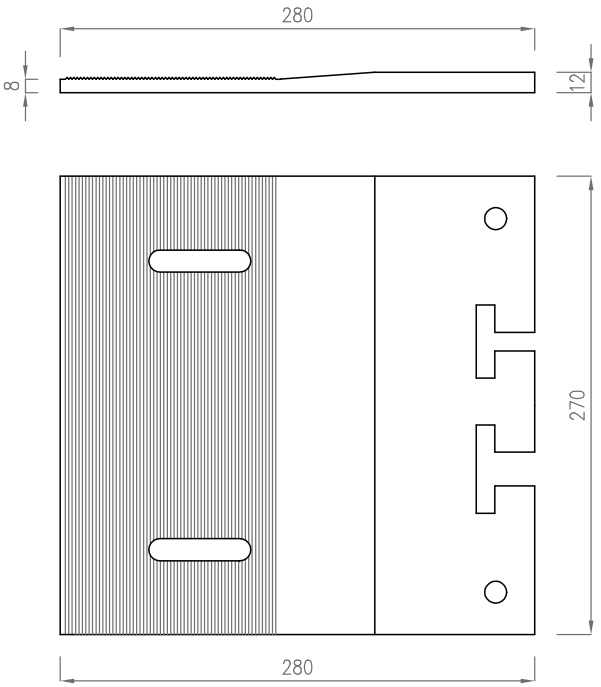


1. Building structure
2. Corrugated sheet
3. Anchoring
4. Bracket plate
5. Screw
6. Bracket crossbar
7. Aluminum sash
8. Fastening screws
9. Facade profile
10. Glass

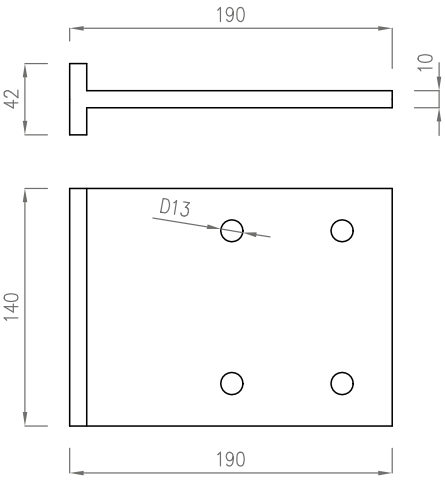


TECHNICAL DRAWING

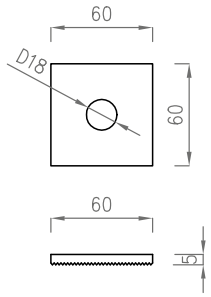
PLATE



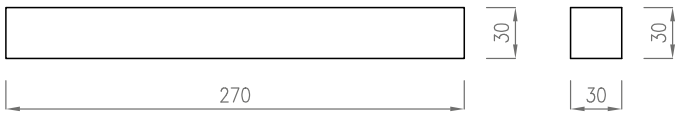
SASH



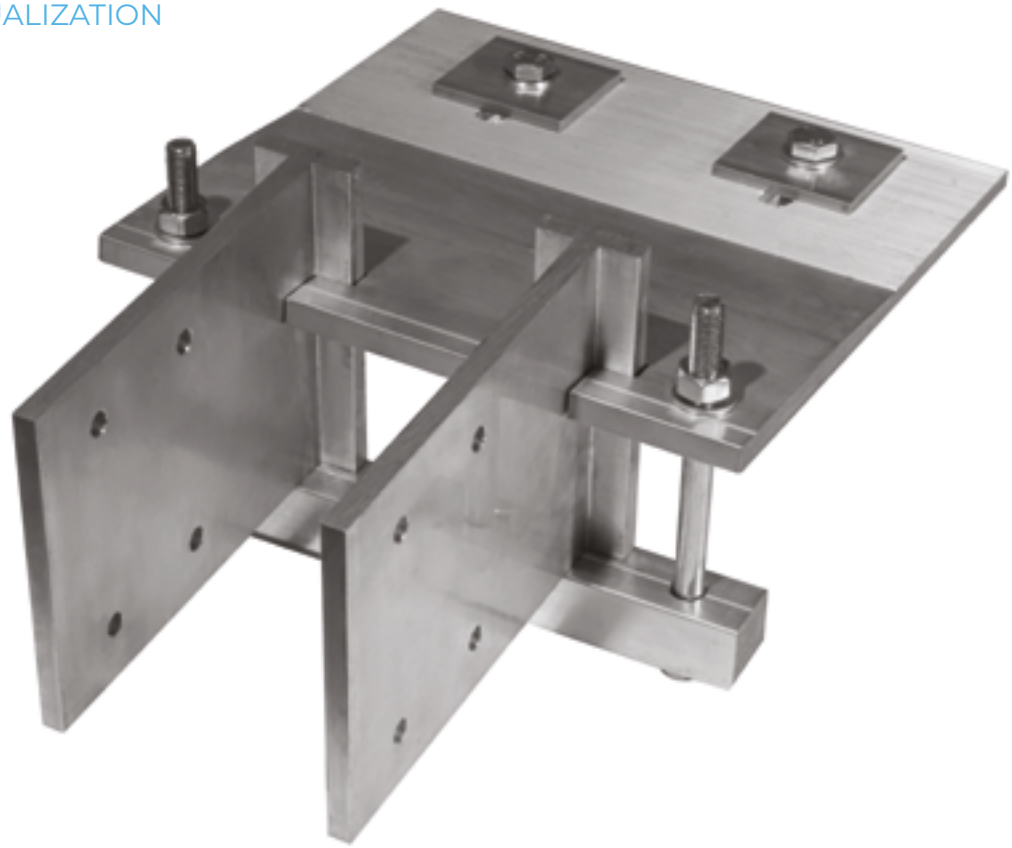
METAL SHEET



CROSSBAR



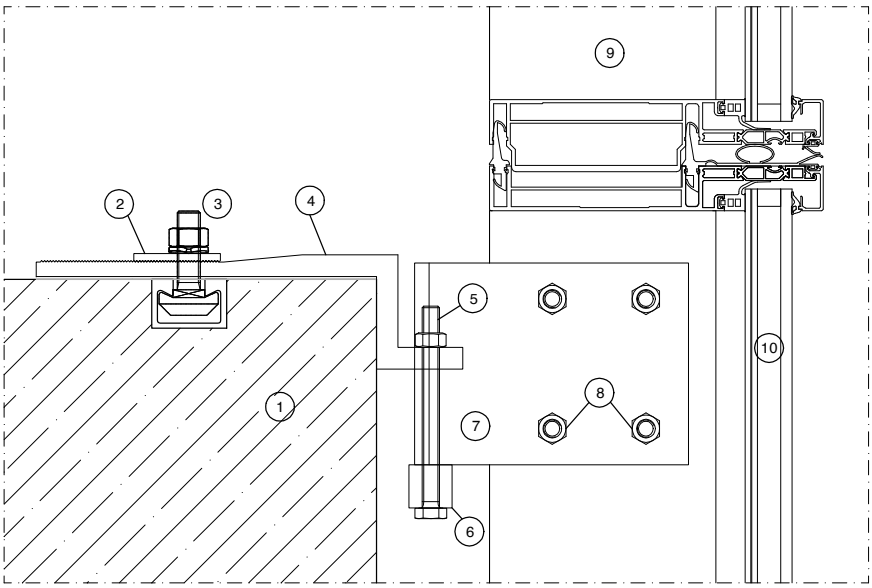
VISUALIZATION



BSP KE1 SEGMENT brackets with a low plate

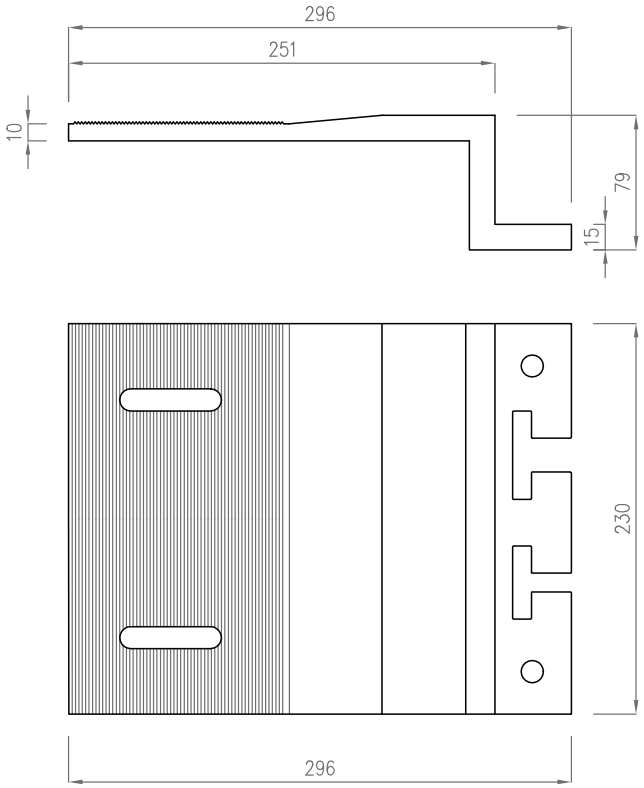
BSP KE1 aluminum brackets with a low plate make it possible to fix the horizontal transoms of the facade at a lower height above the floor slab compared to the standard variant of this bracket. Because of the thickness of the floor layers inside the building, such an arrangement ensures more aesthetically pleasing finish.

TECHNICAL DETAILS



1. Building structure
2. Corrugated sheet
3. Anchoring
4. Low bracket plate
5. Screw
6. Bracket crossbar
7. Aluminum sash
8. Fastening screws
9. Facade profile
10. Glass

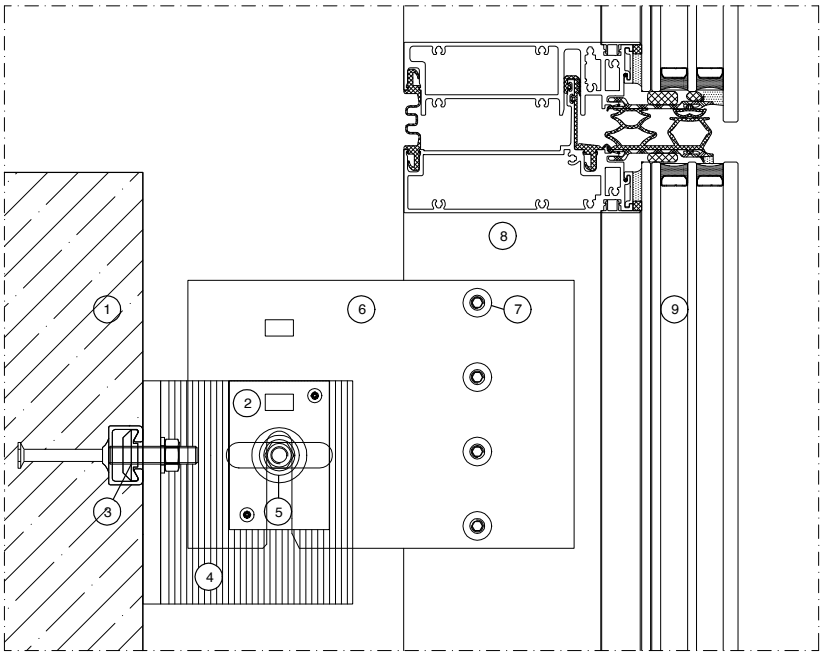
TECHNICAL DRAWING
LOW PLATE

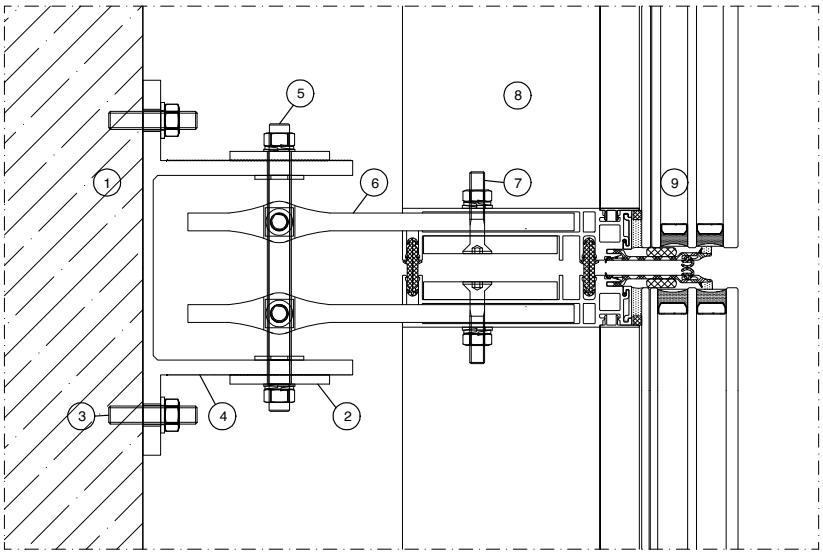


SEGMENT brackets BSP KE2

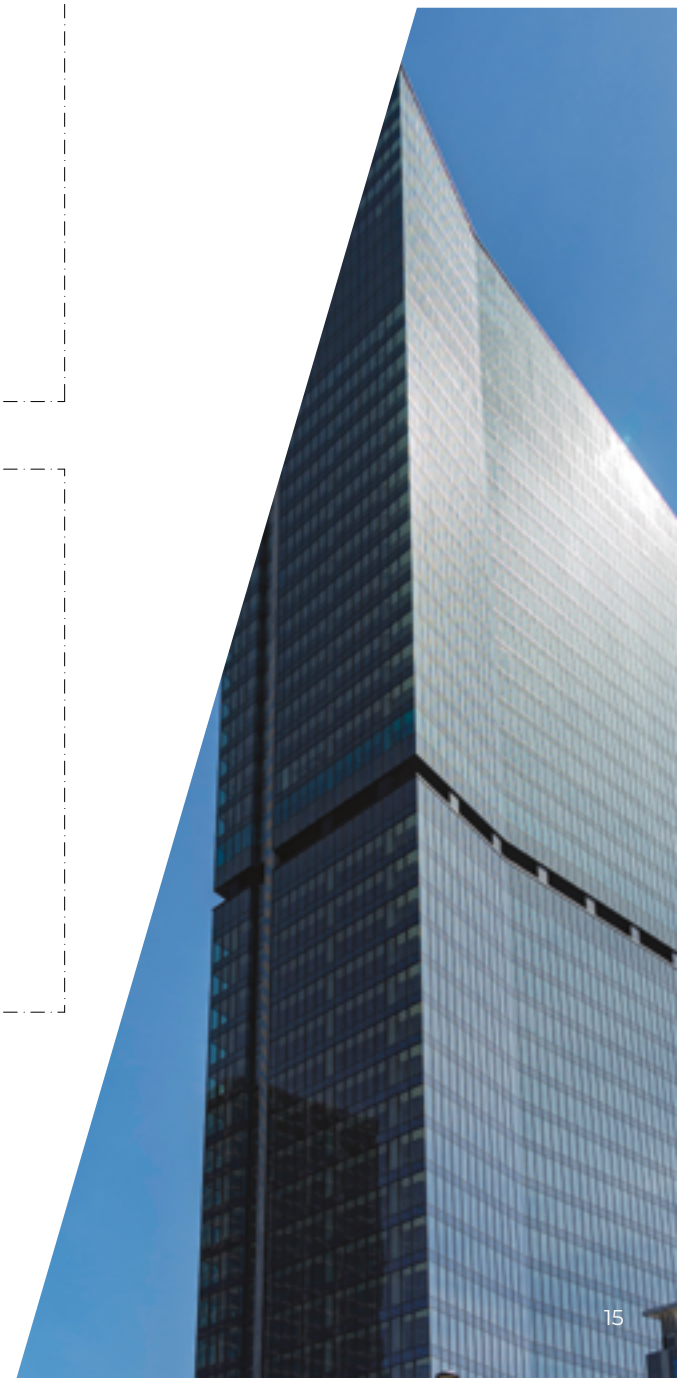
BSP KE2 aluminum brackets are intended for installation of segment glass facades. BSP KE2 aluminum brackets are used to install glass segmental facades. It is recommended to use a mounting rail sunk in the ceiling, which the brackets are fixed to by means of hammer bolts.

TECHNICAL DETAILS



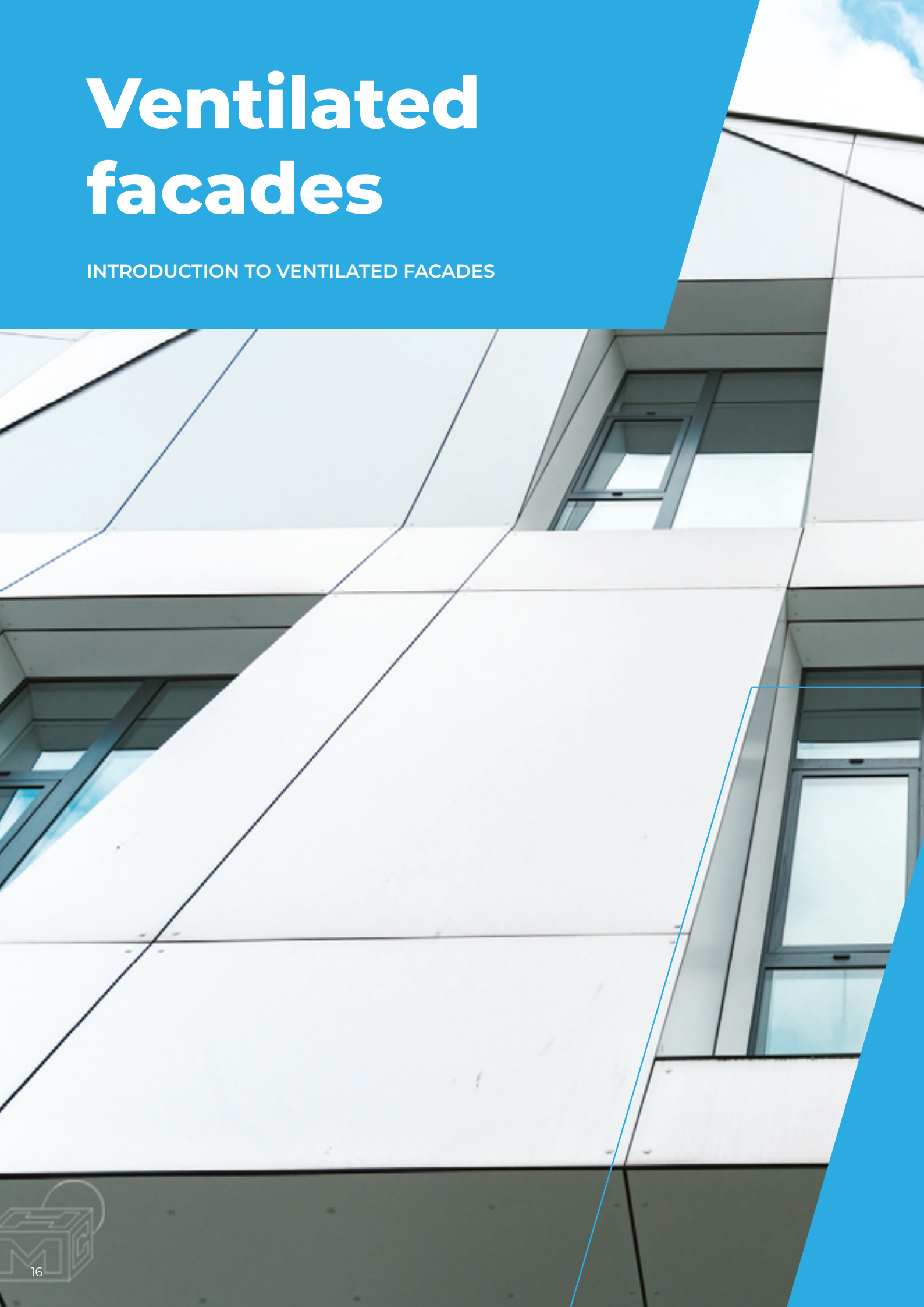


1.Building structure
2. Corrugated sheet
3. Anchorage
4. BSP bracket
5. Steel rod
6. Aluminum sash
7. Fastening screws
8. Facade profile
9. Glass



Ventilated facades

INTRODUCTION TO VENTILATED FACADES



Ventilated facades have been gaining popularity for many years both in Poland and abroad. Technology of ventilated facades is based on fixing the facade cladding properly offset from the thermal insulation layer (thanks to a special substructure) in order to get a ventilation gap. This provides constant flow of the air behind the cladding, ensuring right conditions for the preservation of the cladding material and evaporation of any moisture that gets behind the cladding. This prevents formation of fungi and mold which is undoubtedly one of the biggest advantages of this type of facade. In addition, thanks to modern structural solutions and a wide choice of cladding materials, ventilated facade technology opens up completely new architectural possibilities in terms of aesthetics, form as well as technical and structural properties.

BSP SUBSTRUCTURE SYSTEM FOR VENTILATED FACADES

Apart from the aforementioned visual issues, a ventilated facade must also meet a number of technical requirements regulated by the Building Law and similar regulations. Much of the responsibility for meeting these requirements rests on the substructure by means of which the cladding is attached to a building structure. The main requirements for the substructure are:

- strength requirements
- fire protection requirements
- thermal requirements
- anti-corrosion requirements

In the light of the above requirements the elements of the BSP System aluminum substructure are tested in a very wide range of properties. Most tests are carried out by Notified Bodies in Poland and abroad. Results of the tests confirm the applicability of the products in the building industry and the very good technical parameters of the substructure.

PASSIVE BUILDING

In recent years, increasing attention has been paid to the thermal performance of facades. Awareness of the energy efficiency and the closely related issue of the thermal insulation have been growing due to legislation, but also due to ecological ideas and a need for the environment protection. BSP System Company strongly supports efforts aimed to enhance the above issues by developing solutions that significantly reduce energy consumption. We are talking about passive solutions and, more specifically, passive brackets reducing effect of „thermal bridges" to a minimum thanks to their special design and materials used to manufacture them in a way ensuring appropriate thermal-insulating parameters. Some of BSP System's passive brackets have been certified by the Passive House Institute in Darmstadt, which confirms that these products are perfectly suited for use in the passive building industry.

In addition, BSP System Company has developed design solutions strictly dedicated to facade photovoltaic cladding and free-standing photovoltaic installations. Photovoltaic technology has been growing at a very fast pace. It strongly inspires BSP System's solutions to look at the side of the clean energy.

INFRASTRUCTURE BUILDING INDUSTRY

Ventilated facades have been more and more popular not only in volume building industry but also in infrastructure building industry. An increasing number of these types of facades can be found in road and rail tunnels, underpasses, subway stations and on overpasses. BSP System's substructure systems are ideal for fixing of the cladding on such transportation facilities. This is confirmed by tests carried out at the Road and Bridge Research Institute, resulting in issuance of a National Technical Assessment for BSP System products for use in the transportation building industry. These products meet the increased anti-corrosion requirements, corresponding to the C5 environmental category, accepted in closed transport objects.

MAIN FEATURES OF THE BSP SYSTEM SUBSTRUCTURES

All BSP System aluminum substructure elements are manufactured from extruded aluminum profiles, EN-AW 6060 or EN-AW 6063 alloy, T6 or T66 class. This is undoubtedly an advantage over bent elements, where micro-cracks occur increasing the risk of loss of constancy of performance of the product.

All elements of the BSP System substructure are characterized by B class durability according to PN-EN 1999-1-1:2011 and can be used, without protective coatings, in environments with corrosivity category of the atmosphere C1, C2 and C3 according to PN-EN ISO 12944-2:2001. After carrying out additional protective treatment - anodizing or varnishing - they can also be used in environments with corrosivity category of the atmosphere C4 and C5.

Aluminum substructure elements of BSP System are classified in terms of reaction to fire, without testing in A1 class, according to PN-EN 13501-1+A1:2010 on the basis of decisions of the European Commission No. 96/603/EC, 2000/605/EC and 2003/424/EC. This is equivalent to the NRO class (no spread of fire).

All BSP System substructure systems have a National Technical Assessment or European Technical Assessment; hence, they can be marketed in accordance with the Law on Building Products.

Some of general advantages of aluminum substructures are worth mentioning:

- high resistance to weather conditions
- low weight of the components, which has an impact on transportation costs reduction
- easy processing of components, requiring no additional corrosion protection

GENERAL PRINCIPLE OF OPERATION AND COMPOSITION OF BSP SYSTEM SUBSTRUCTURES

BSP System aluminum substructure consists of brackets and vertical profiles, most often angle and T-shaped. Depending on the substructure system, horizontal catch profiles, all kinds of cladding fasteners and additional elements such as washers, gaskets, adjusting screws, etc. may also be a component.

Brackets are spot elements attached to the wall, transferring loads from the external facade to the main building structure. Length of the brackets depends on the facade overhang and is selected in each case on the basis of the design documentation. There are two types of brackets Load-carrying brackets, with a standard height of 120 or 150 mm, usually fixed with two anchors.

– They transfer both horizontal loads (wind suction/pressure) and vertical loads (weight of the facade). Sliding brackets (otherwise called wind brackets), standard height 60 mm, fixed with a single anchor - they carry only horizontal loads. The brackets have a specially designed pocket, greatly facilitating fixing of profiles and alignment of their plane. Holes in the brackets for attaching profiles ensure that they can freely expand thermally. Anchoring elements selected on the basis of static calculations are used to fix the brackets to the building structure. Base of the brackets is equipped with a longitudinal horizontal hole in order to maintain horizontal anchorage adjustment (for example, when facing reinforcement in the reinforced concrete substrate). Special system washers BSP HDPE (alternatively EPDM or PVC) are used under the brackets to prevent corrosion at the contact between aluminum and the substrate.

Vertical profiles are continuous elements attached to brackets. Depending on the sub-structure system the facade cladding can be attached directly to the vertical profiles by means of rivets, screws or a glued system, or due to additional catch profiles and hooks. When the cladding is attached directly to vertical profiles, angle and T-profiles are most commonly used. T-profiles are used at the joint of the panels, while angle profiles are used to support their center part. Depending on the forces acting on the facade, profiles of appropriate size and thickness and thus, their strength, are selected. The minimum distance of fixing the T-profiles from their edges, imposed by the cladding manufacturer, can also be significant when selecting appropriate T-profiles. Both the deep „foot" of the profiles and the appropriate design of the brackets make it possible to maintain a relatively large adjustment of the substructure plane.

In case of a catch fixing of the cladding, the substructure system also includes catch components described in more detail in individual systems. We usually use catch systems in the following cases:

- no bonding possible due to fire regulations
- no riveting or gluing possible due to the significant thickness and weight of the cladding
- no riveting due to difficult or impossible drilling of the cladding material such as glass.
- a need to maintain the ability to easily remove facade panels
- no bonding possible due to weather conditions

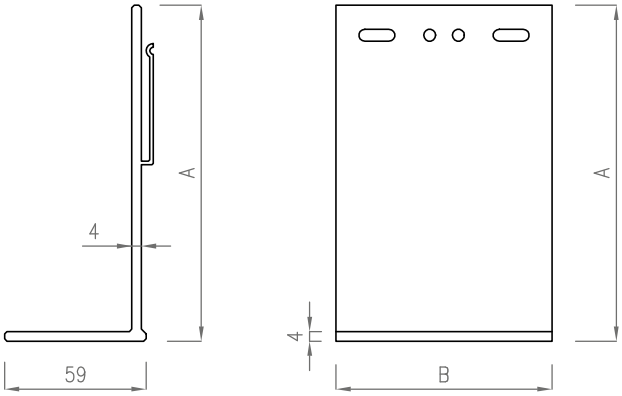
BRACKETS FOR VENTILATED FACADES

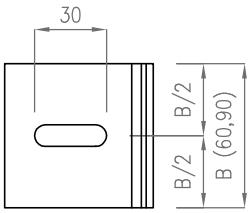
BSP KW1 brackets

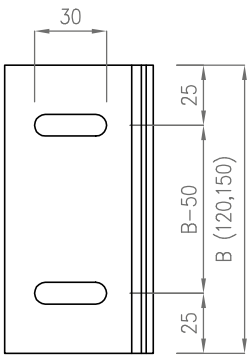
KW1 brackets are manufactured entirely from the aluminum. The general principle of operation and structure of the brackets is shown on page 19. The unquestionable advantage of KW1 brackets is their high strength due to the 4 mm wall thickness. This makes it possible to reduce the number of brackets attached to the wall, which in turn has a positive effect on the number of „thermal bridges" and the thermal-insulation parameters of the partition, as well as a shorter installation time. KW1 brackets are available in a wide range of overhang - from 42 to 310 mm.

VISUALIZATION

TECHNICAL DRAWING





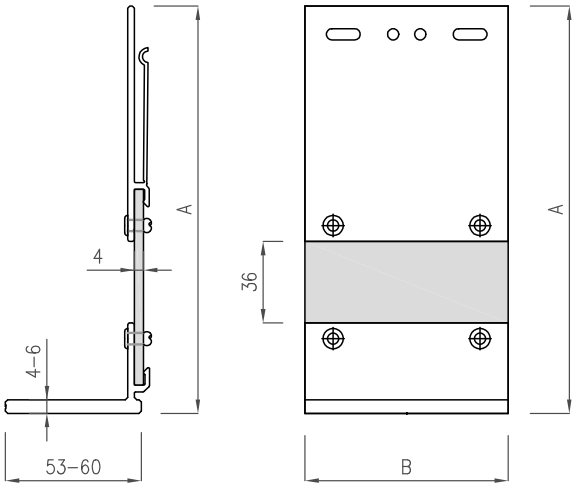


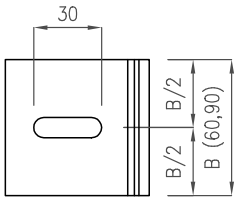
DIMENSIONS OF THE BRACKETS		
BRACKET	A	B
KW1/42-150	42	150
KW1/42-120	42	120
KW1/42-90	42	90
KW1/42-60	42	60
KW1/60-150	60	150
KW1/60-120	60	120
KW1/60-90	60	90
KW1/60-60	60	60
KW1/80-150	80	150
KW1/80-120	80	120
KW1/80-90	80	90
KW1/80-60	80	60
KW1/100-150	100	150
KW1/100-120	100	120
KW1/100-90	100	90
KW1/100-60	100	60
KW1/120-150	120	150
KW1/120-120	120	120
KW1/120-90	120	90
KW1/120-60	120	60
KW1/140-150	140	150
KW1/140-120	140	120
KW1/140-90	140	90
KW1/140-60	140	60
KW1/170-150	170	150
KW1/170-120	170	120
KW1/170-90	170	90
KW1/170-60	170	60
KW1/210-150	210	150
KW1/210-120	210	120
KW1/210-90	210	90
KW1/210-60	210	60
KW1/240-150	240	150
KW1/240-120	240	120
KW1/240-90	240	90
KW1/240-60	240	60
KW1/260-150	260	150
KW1/260-120	260	120
KW1/260-90	260	90
KW1/260-60	260	60
KW1/280-150	280	150
KW1/280-120	280	120
KW1/280-90	280	90
KW1/280-60	280	60
KW1/310-150	310	150
KW1/310-120	310	120
KW1/310-90	310	90
KW1/310-60	310	60

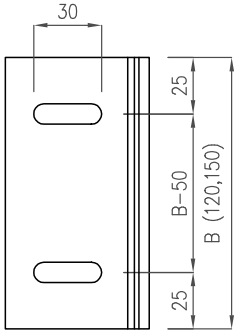
BSP KW1 PAS brackets

KW1 PAS passive brackets are designed to reduce the heat loss from the interior of the building caused by elements piercing the thermal insulation layer. Specially designed shape of the brackets and the properly selected materials which they are manufactured from enable a relatively high load-bearing capacity while maintaining very favorable insulation parameters. These brackets consist of aluminum elements and a flat thermal insulation spacer made of epoxy-glass laminate. In 2020 this product was awarded a certificate from the Passive House Institute in Darmstadt, confirming the validity of its use in energy-efficient structures. The KW1 PAS bracket is classified as not spreading fire when acting from the outside. In terms of reaction to fire it offers B-s3, d0 class. It was also awarded a positive opinion from ITB for use above 25 m and in fire separation segments. More information on the general principle of operation and structure of brackets is presented on page 19.

TECHNICAL DRAWING







DIMENSIONS OF THE BRACKETS

BRACKET	A	B
KW1 PAS/170-150	170	150
KW1 PAS/170-120	170	120
KW1 PAS/170-90	170	90
KW1 PAS/170-60	170	60
KW1 PAS/200-150	200	150
KW1 PAS/200-120	200	120
KW1 PAS/200-90	200	90
KW1 PAS/200-60	200	60
KW1 PAS/220-150	220	150
KW1 PAS/220-120	220	120
KW1 PAS/220-90	220	90
KW1 PAS/220-60	220	60
KW1 PAS/240-150	240	150
KW1 PAS/240-120	240	120
KW1 PAS/240-90	240	90
KW1 PAS/240-60	240	60
KW1 PAS/260-150	260	150
KW1 PAS/260-120	260	120
KW1 PAS/260-90	260	90
KW1 PAS/260-60	260	60
KW1 PAS/280-150	280	150
KW1 PAS/280-120	280	120
KW1 PAS/280-90	280	90
KW1 PAS/280-60	280	60
KW1 PAS/310-150	310	150
KW1 PAS/310-120	310	120
KW1 PAS/310-90	310	90
KW1 PAS/310-60	310	60

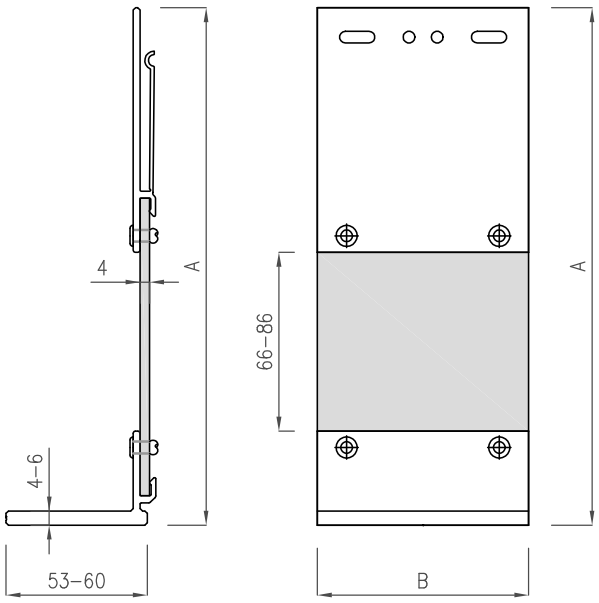
SPOT HEAT TRANSFER COEFFICIENTS

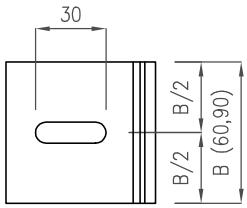
BRACKET	FLOORING			THERMAL INSULATION		SPOT HEAT TRANF. COEFFICIENT [W/K]
Type	Type	Thickness [mm]	Heat conductivity [W/(mK)]	Thickness [mm]	Heat conductivity [W/(mK)]	
KW1 PAS/170-120	reinforced concrete	240	2,5	150	0,034	0,00675
KW1 PAS/170-60	reinforced concrete	240	2,5	150	0,034	0,00375
KW1 PAS/170-150	silicon	240	0,8	150	0,034	0,0075
KW1 PAS/170-60	silicon	240	0,8	150	0,034	0,00325
KW1 PAS/170-120	aerated concrete	240	0,3	150	0,034	0,00625
KW1 PAS/170-60	aerated concrete	240	0,3	150	0,034	0,00275
KW1 PAS/280-120	reinforced concrete	240	2,5	260	0,034	0,0085
KW1 PAS/280-60	reinforced concrete	240	2,5	260	0,034	0,00475
KW1 PAS/280-150	silicon	240	0,8	260	0,034	0,00925
KW1 PAS/280-60	silicon	240	0,8	260	0,034	0,00425
KW1 PAS/280-120	aerated concrete	240	0,3	260	0,034	0,0065
KW1 PAS/280-60	aerated concrete	240	0,3	260	0,034	0,00225

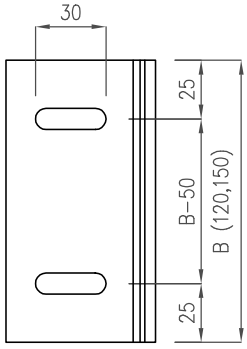
BSP KW1 PAS brackets

KW1 PAS+ passive brackets are modified KW1 PAS brackets with an analogous design, but with an elongated insulating spacer made of epoxy-glass laminate. Thanks to this difference, brackets are characterized by even better thermal insulation parameters. Other properties - strength, fire resistance and anti-corrosion remain unchanged. The bracket is classified as not spreading fire when acting from the outside. In terms of reaction to fire, it offers B-s3, d0 class. It also has a positive ITB opinion for use above 25 m and in fire separation segments. More information on the general principle of operation and structure of brackets is presented on page 19.

TECHNICAL DRAWING







DIMENSIONS OF THE BRACKETS

BRACKET	A	B
KW1 PAS+/200-150	200	150
KW1 PAS+/200-120	200	120
KW1 PAS+/200-90	200	90
KW1 PAS+/200-60	200	60
KW1 PAS+/220-150	220	150
KW1 PAS+/220-120	220	120
KW1 PAS+/220-90	220	90
KW1 PAS+/220-60	220	60
KW1 PAS+/240-150	240	150
KW1 PAS+/240-120	240	120
KW1 PAS+/240-90	240	90
KW1 PAS+/240-60	240	60
KW1 PAS+/260-150	260	150
KW1 PAS+/260-120	260	120
KW1 PAS+/260-90	260	90
KW1 PAS+/260-60	260	60
KW1 PAS+/280-150	280	150
KW1 PAS+/280-120	280	120
KW1 PAS+/280-90	280	90
KW1 PAS+/280-60	280	60
KW1 PAS+/310-150	310	150
KW1 PAS+/310-120	310	120
KW1 PAS+/310-90	310	90
KW1 PAS+/310-60	310	60
KW1 PAS/310-150	310	150
KW1 PAS/310-120	310	120
KW1 PAS/310-90	310	90
KW1 PAS/310-60	310	60

SPOT HEAT TRANSFER COEFFICIENTS

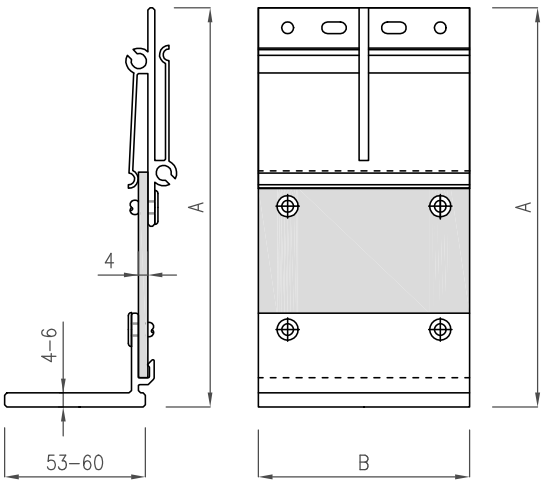
BRACKET	FLOORING			THERMAL INSULATION		SPOT HEAT TRANF. COEFF. [W/K]
Type	Type	Thick-ness [mm]	Heat con-ductivity [W/(mK)]	Thick-ness [mm]	Heat con-ductivity [W/(mK)]	
KW1 PAS+/200-120	reinforced concrete	240	2,5	180	0,034	0,0045
KW1 PAS+/200-60	reinforced concrete	240	2,5	180	0,034	0,0025
KW1 PAS+/200-150	silicon	240	0,8	180	0,034	0,005
KW1 PAS+/200-60	silicon	240	0,8	180	0,034	0,00225
KW1 PAS+/200-120	aerated concrete	240	0,3	180	0,034	0,003
KW1 PAS+/200-60	aerated concrete	240	0,3	180	0,034	0,00175
KW1 PAS+/310-120	reinforced concrete	240	2,5	280	0,034	0,006
KW1 PAS+/310-60	reinforced concrete	240	2,5	280	0,034	0,0035
KW1 PAS+/310-150	silicon	240	0,8	280	0,034	0,00675
KW1 PAS+/310-60	silicon	240	0,8	280	0,034	0,0035
KW1 PAS+/310-120	aerated concrete	240	0,3	280	0,034	0,0045
KW1 PAS+/310-60	aerated concrete	240	0,3	280	0,034	0,0025

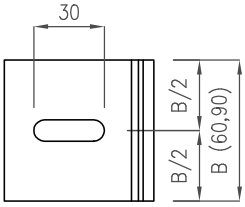
BSP KW3 PAS brackets

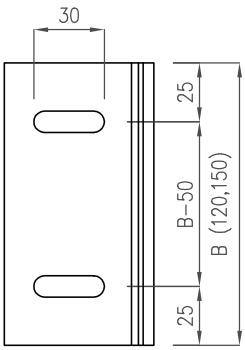
KW3 PAS passive brackets, similarly to KW1 PAS brackets, consist of aluminum elements and a flat thermal-insulation spacer made of epoxy-glass laminate. Structure of the KW3 PAS brackets differs by the aluminum tip. The tip offers a special mounting hole and a horizontal notch enabling fixing a profile perpendicularly to the bracket - at so called horizontal arrangement. Brackets are fixed to the wall in a vertical arrangement, so that their adequate bearing capacity for vertical forces (the weight of the cladding) is maintained. KW3 PAS bracket is classified as not spreading fire when acting from the outside. In terms of reaction to fire, it offers B-s3, d0 class. It was also awarded a positive opinion from ITB for use above 25 m and in fire separation segments. More information on the general principle of operation and structure of brackets is presented on page 19.

DIMENSIONS OF THE BRACKETS		
BRACKET	A	B
KW4 PAS/170-150	170	150
KW4 PAS/170-120	170	120
KW4 PAS/170-90	170	90
KW4 PAS/170-60	170	60
KW4 PAS/200-150	200	150
KW4 PAS/200-120	200	120
KW4 PAS/200-90	200	90
KW4 PAS/200-60	200	60
KW4 PAS/220-150	220	150
KW4 PAS/220-120	220	120
KW4 PAS/220-90	220	90
KW4 PAS/220-60	220	60
KW4 PAS/240-150	240	150
KW4 PAS/240-120	240	120
KW4 PAS/240-90	240	90
KW4 PAS/240-60	240	60
KW4 PAS/260-150	260	150
KW4 PAS/260-120	260	120
KW4 PAS/260-90	260	90
KW4 PAS/260-60	260	60
KW4 PAS/280-150	280	150
KW4 PAS/280-120	280	120
KW4 PAS/280-90	280	90
KW4 PAS/280-60	280	60

TECHNICAL DRAWING







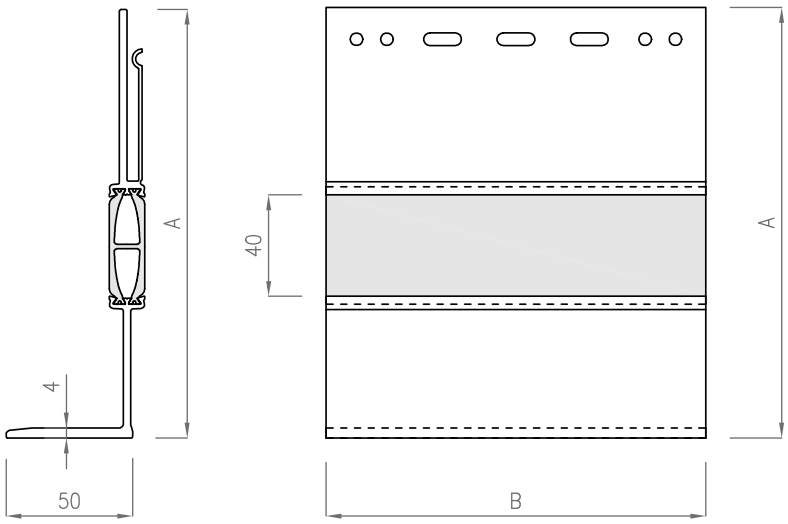
BSP KW4 PAS brackets

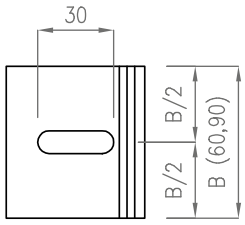
KW4 PAS passive brackets are a newer generation compared to KW1 PAS. They have been developed mainly to optimize price, however, the product offers similar or even better technical performance than its predecessor. The main technical advantage of the KW4 PAS brackets is the very low spot heat transfer coefficient (thermal bridge). These brackets consist of aluminum elements and a chamber spacer made of a plastic characterized by a very low thermal conductivity. The chambers of the spacer fit into the thermal insulation wool layer, producing a non-ventilated air space. It has a positive effect on the thermal insulation.

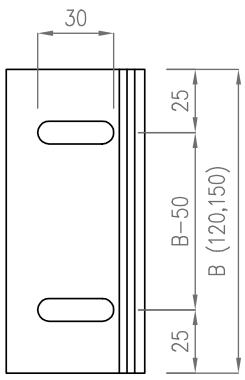
The product was awarded a certificate from the Passive House Institute in Darmstadt, confirming the validity of its use in energy-efficient structures.

DIMENSIONS OF THE BRACKETS		
BRACKET	A	B
KW4 PAS/170-150	170	150
KW4 PAS/170-120	170	120
KW4 PAS/170-90	170	90
KW4 PAS/170-60	170	60
KW4 PAS/200-150	200	150
KW4 PAS/200-120	200	120
KW4 PAS/200-90	200	90
KW4 PAS/200-60	200	60
KW4 PAS/220-150	220	150
KW4 PAS/220-120	220	120
KW4 PAS/220-90	220	90
KW4 PAS/220-60	220	60
KW4 PAS/240-150	240	150
KW4 PAS/240-120	240	120
KW4 PAS/240-90	240	90
KW4 PAS/240-60	240	60
KW4 PAS/260-150	260	150
KW4 PAS/260-120	260	120
KW4 PAS/260-90	260	90
KW4 PAS/260-60	260	60
KW4 PAS/280-150	280	150
KW4 PAS/280-120	280	120
KW4 PAS/280-90	280	90
KW4 PAS/280-60	280	60

TECHNICAL DRAWING



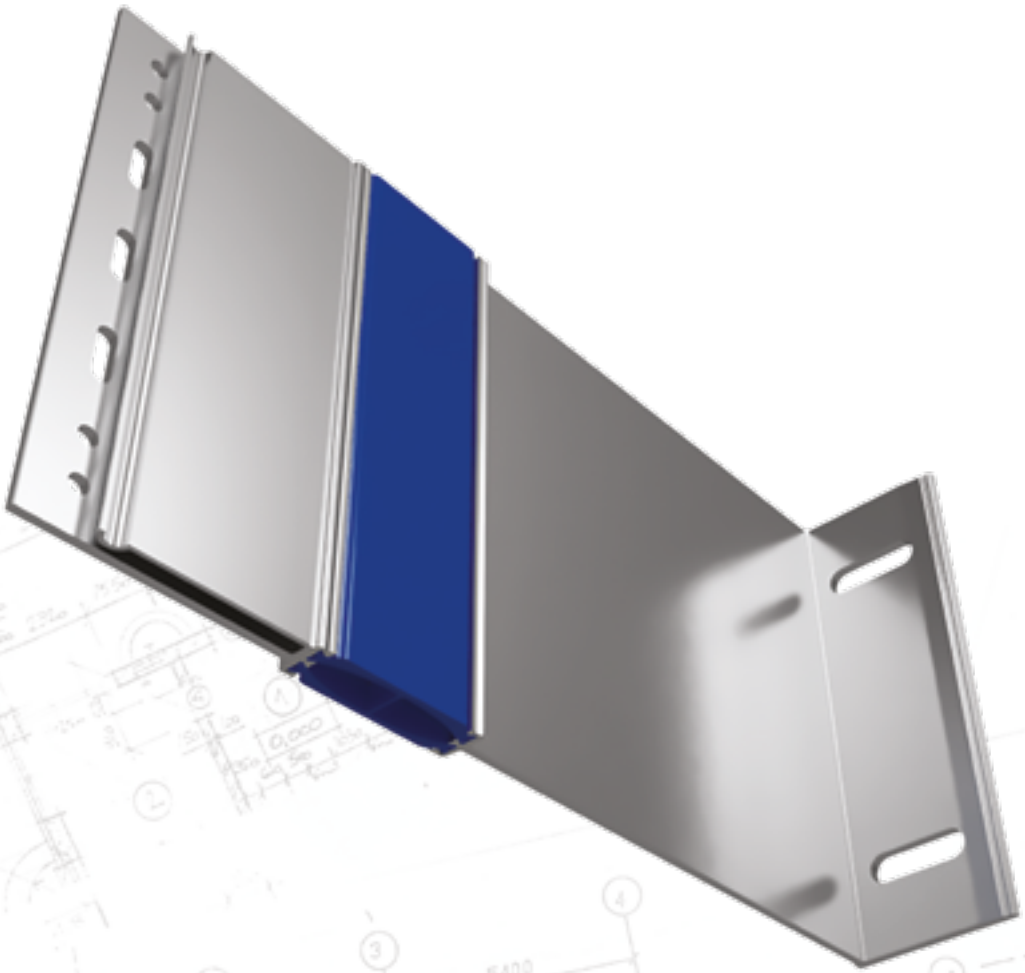




KW4 PAS bracket is classified as not spreading fire when acting from the outside. In terms of reaction to fire, it offers B-s3, d0 class. It also was awarded a positive opinion from ITB for use above 25 m and in fire separation segments. More information on the general principle of operation and structure of brackets is presented on page 19.

SPOT HEAT TRANSFER COEFFICIENTS						
BRACKET	FLOORING			THERMAL INSULATION		SPOT HEAT TRANF. COEFFICIENT [W/K]
Type	Type	Thickness [mm]	Heat conductivity [W/(mK)]	Thickness [mm]	Heat conductivity [W/(mK)]	
KW4 PAS/170-120	reinforced concrete	240	2,5	150	0,034	0,006
KW4 PAS/170-60	reinforced concrete	240	2,5	150	0,034	0,00325
KW4 PAS/170-150	silicon	240	0,8	150	0,034	0,00675
KW4 PAS/170-60	silicon	240	0,8	150	0,034	0,003
KW4 PAS/170-120	aerated concrete	240	0,3	150	0,034	0,0045
KW4 PAS/170-60	aerated concrete	240	0,3	150	0,034	0,0025
KW4 PAS/280-120	reinforced concrete	240	2,5	260	0,034	0,00925
KW4 PAS/280-60	reinforced concrete	240	2,5	260	0,034	0,0055
KW4 PAS/280-150	silicon	240	0,8	260	0,034	0,00975
KW4 PAS/280-60	silicon	240	0,8	260	0,034	0,00475
KW4 PAS/280-120	aerated concrete	240	0,3	260	0,034	0,00675
KW4 PAS/280-60	aerated concrete	240	0,3	260	0,034	0,004

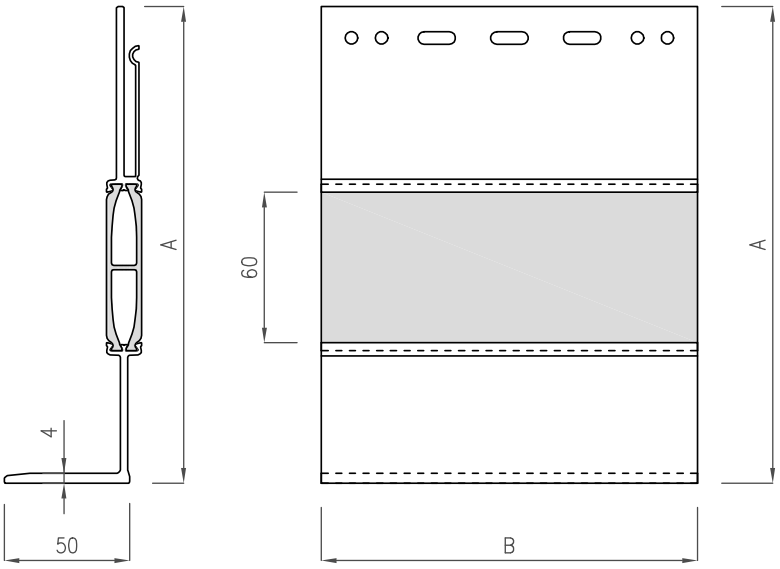
VISUALIZATION

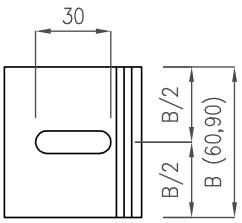


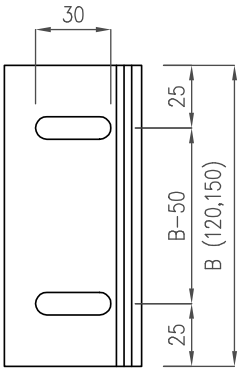
BSP KW4 PAS brackets

KW4 PAS+ passive brackets are modified KW4 PAS brackets with an analogous design, but with an extended plastic chamber spacer. Thanks to this difference the brackets are characterized by even better thermal insulation parameters. Fire protection and anti-corrosion properties remain unchanged. The bracket is classified as not spreading fire when acting from the outside. In terms of reaction to fire, it offers B-s3, d0 class. It was also awarded a positive opinion from ITB for use above 25 m and in fire separation segments. More information on the general principle of operation and structure of brackets is presented on page 19.

TECHNICAL DRAWING







DIMENSIONS OF THE BRACKETS

BRACKET	A	B
KW4 PAS+/200-150	200	150
KW4 PAS+/200-120	200	120
KW4 PAS+/200-90	200	90
KW4 PAS+/200-60	200	60
KW4 PAS+/220-150	220	150
KW4 PAS+/220-120	220	120
KW4 PAS+/220-90	220	90
KW4 PAS+/220-60	220	60
KW4 PAS+/240-150	240	150
KW4 PAS+/240-120	240	120
KW4 PAS+/240-90	240	90
KW4 PAS+/240-60	240	60
KW4 PAS+/260-150	260	150
KW4 PAS+/260-120	260	120
KW4 PAS+/260-90	260	90
KW4 PAS+/260-60	260	60
KW4 PAS+/280-150	280	150
KW4 PAS+/280-120	280	120
KW4 PAS+/280-90	280	90
KW4 PAS+/280-60	280	60
KW4 PAS+/300-150	300	150
KW4 PAS+/300-120	300	120
KW4 PAS+/300-90	300	90
KW4 PAS+/300-60	300	60

SPOT HEAT TRANSFER COEFFICIENTS

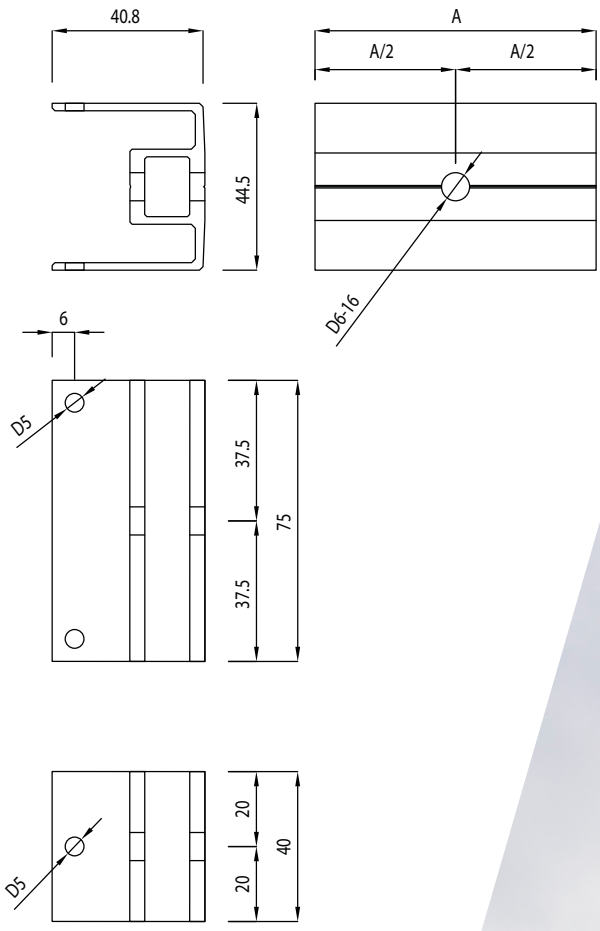
BRACKET	FLOORING			THERMAL INSULATION		SPOT HEAT TRANF. COEFFICIENT [W/K]
Type	Type	Thick-ness [mm]	Heat con-ductivity [W/(mK)]	Thick-ness [mm]	Heat con-ductivity [W/(mK)]	
KW4 PAS+/200-120	reinforced concrete	240	2,5	180	0,034	0,00375
KW4 PAS+/200-60	reinforced concrete	240	2,5	180	0,034	0,00175
KW4 PAS+/200-150	silicon	240	0,8	180	0,034	0,00425
KW4 PAS+/200-60	silicon	240	0,8	180	0,034	0,00175
KW4 PAS+/200-120	aerated concrete	240	0,3	180	0,034	0,0025
KW4 PAS+/200-60	aerated concrete	240	0,3	180	0,034	0,001
KW4 PAS+/300-120	reinforced concrete	240	2,5	280	0,034	0,008
KW4 PAS+/300-60	reinforced concrete	240	2,5	280	0,034	0,004
KW4 PAS+/300-150	silicon	240	0,8	280	0,034	0,00725
KW4 PAS+/300-60	silicon	240	0,8	280	0,034	0,0035
KW4 PAS+/300-120	aerated concrete	240	0,3	280	0,034	0,005
KW4 PAS+/300-60	aerated concrete	240	0,3	280	0,034	0,003

BSP KWE brackets

KWE brackets are manufactured entirely from aluminum. The components have threaded holes due to which they are screwed onto the rods. The profiles are inserted into the KWE brackets, walls of which are gently inclined toward each other clamping the inserted profile and holding it in the designated position. The brackets come in one overhang, as the offset of the cladding from the wall is adjusted along the length of the bars. In this way the same components are used, regardless of the overhang, and the problem of replacing of brackets when there are large deviations in the ground plane is avoided.

DIMENSIONS OF THE BRACKETS	
BRACKET	A
KWE/40	40
KWE/75	75

TECHNICAL DRAWING

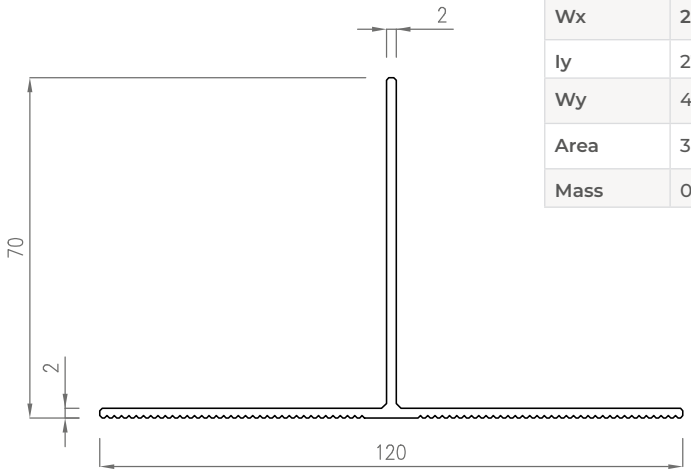


ANGLE AND T-PROFILES FOR VENTILATED FACADES

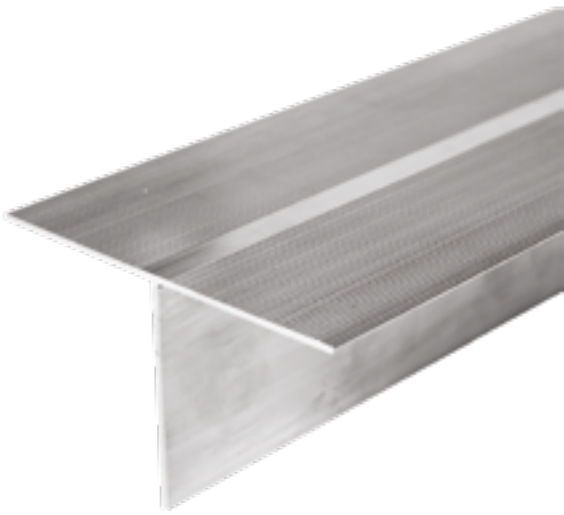
In our assortment we have a number of angle and T-shaped profiles. These are the most popular and versatile types of profiles used for ventilated facades. Profiles differ from each other in terms of wall thickness and dimensions, and thus, they offer different strength parameters. T-profiles are used at the connection of facade panels, while angle profiles are used to support the middle part of the panels. BSP profiles additionally offer grooved surfaces that increase adhesion with an adhesive cladding fastening system.

KWR1 profile

TECHNICAL DRAWING

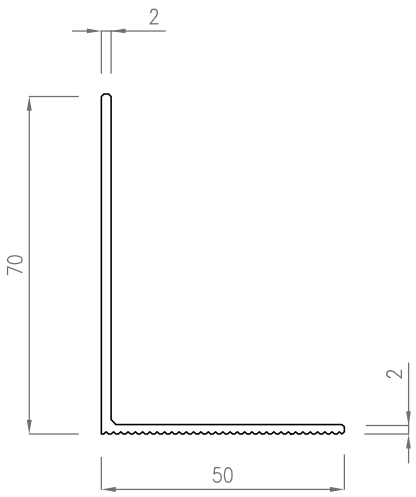


KWR1	
Ix	15,580 cm4
Wx	2,785 cm3
Iy	27,096 cm4
Wy	4,516 cm3
Area	3,642 cm2
Mass	0,983 kg/mb



KWR2 profile

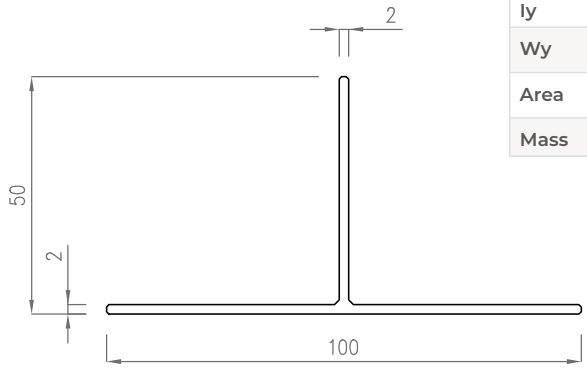
TECHNICAL DRAWING



KWR2	
Ix	12,001 cm4
Wx	2,480 cm3
Iy	5,154 cm4
Wy	1,315 cm3
Area	2,305 cm2
Mass	0,622 kg/mb

KWR3 profile

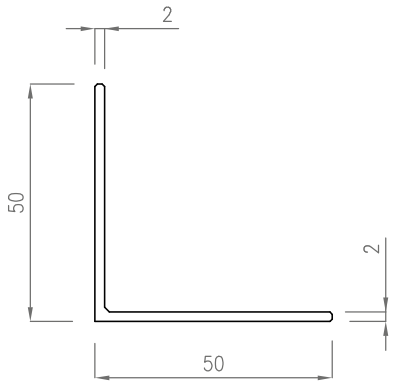
TECHNICAL DRAWING



KWR3	
Ix	5,864 cm4
Wx	1,432 cm3
Iy	16,546 cm4
Wy	3,309 cm3
Area	2,963 cm2
Mass	0,803 kg/mb

KWR4 profile

TECHNICAL DRAWING

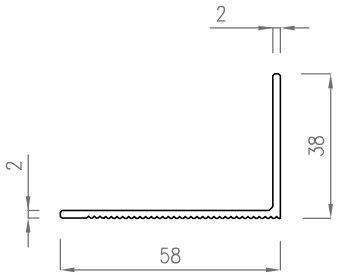


KWR4	
Ix	4,908 cm4
Wx	1,335 cm3
Iy	4,908 cm4
Wy	1,335 cm3
Area	1,960 cm2
Mass	0,531 kg/mb

KWR5 profile

KWR5 and KWR8 profiles are characterized by a shallow shape. Consequently, we can achieve a relatively small overhang of the cladding from the wall. These profiles are most often used in interiors, where serious strength is not required.

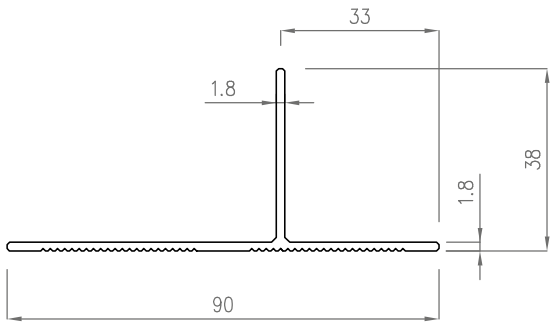
TECHNICAL DRAWING



KWR5	
Ix	2,305 cm4
Wx	0,785 cm3
Iy	6,454 cm4
Wy	1,607 cm3
Area	1,794 cm2
Mass	0,486 kg/mb

KWR8 profile

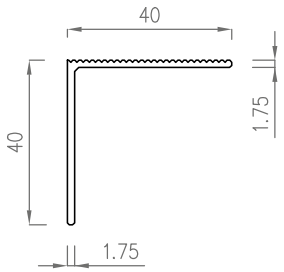
TECHNICAL DRAWING



KWR8	
Ix	2,325 cm4
Wx	0,741 cm3
Iy	10,879 cm4
Wy	2,236 cm3
Area	2,164 cm2
Mass	0,587 kg/mb

KWR7 profile

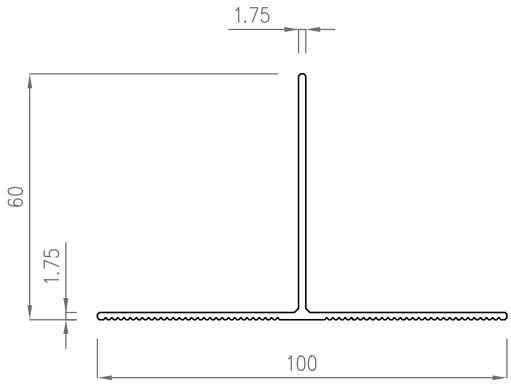
TECHNICAL DRAWING



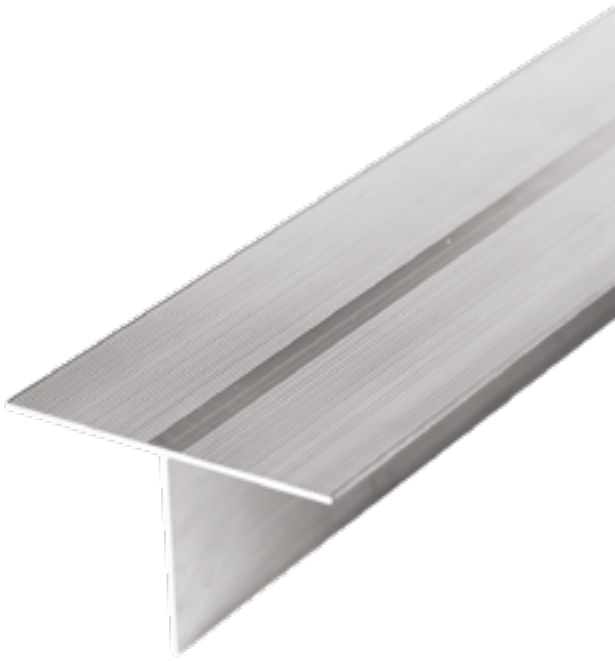
KWR7	
Ix	2,092 cm4
Wx	0,724 cm3
Iy	2,027 cm4
Wy	0,679 cm3
Area	1,304 cm2
Mass	0,353 kg/mb

KWR9 profile

TECHNICAL DRAWING

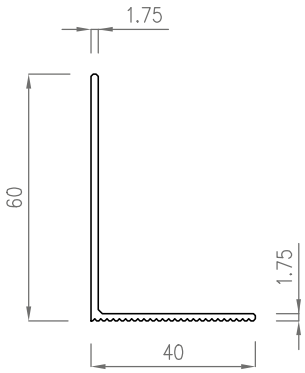


KWR9	
Ix	8,421 cm4
Wx	1,773 cm3
Iy	13,179 cm4
Wy	2,636 cm3
Area	2,627 cm2
Mass	0,712 kg/mb



KWR10 profile

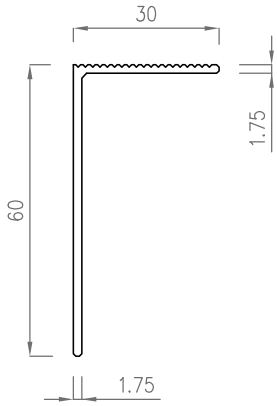
TECHNICAL DRAWING



KWR10	
Ix	6,354 cm4
Wx	1,561 cm3
Iy	2,266 cm4
Wy	0,712 cm3
Area	1,654 cm2
Mass	0,448 kg/mb

KWR11 profile

TECHNICAL DRAWING

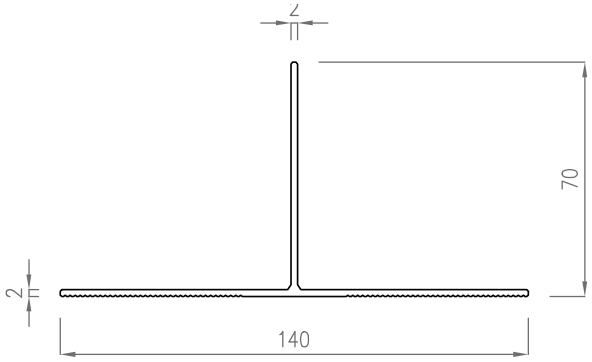


KWR11	
Ix	5,767 cm4
Wx	1,488 cm3
Iy	1,003 cm4
Wy	0,407 cm3
Area	1,497 cm2
Mass	0,406 kg/mb

KWR12 profile

KWR12 profile has a widened front wall with a width of 140 mm. This makes it possible to join panels by rivets, and the required riveting distance from the edge of the panel equals min. 50 mm, e.g. in case of some types of ceramic sintering.

TECHNICAL DRAWING

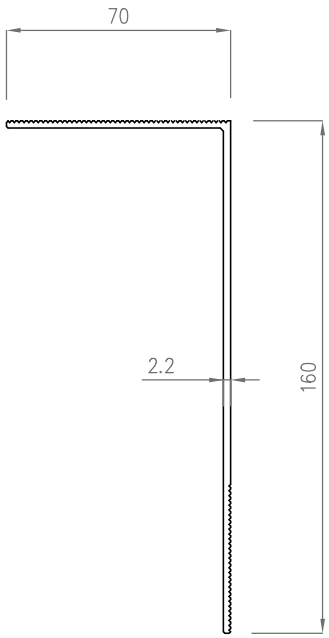


KWR12	
Ix	16,554 cm4
Wx	2,851 cm3
Iy	45,957 cm4
Wy	6,565 cm3
Area	4,390 cm2
Mass	1,185 kg/mb

KWRG profile

KWRG profile is used as a support for splay panels at windows and other wall openings. The profile has an elongated wall, so it can be fixed directly to the wall while maintaining the proper anchoring distance from the edge of the structure.

TECHNICAL DRAWING



KWRG	
Ix	131,388 cm4
Wx	12,695 cm3
Iy	17,280 cm4
Wy	2,934 cm3
Area	4,819 cm2
Mass	1,301 kg/mb

SELECTION OF THE SUBSTRUCTURE SYSTEM FOR THE TYPE OF CLADDING

DEDYKACJE SYSTEMÓW				
Type of cladding	Fixing	Sub-structure system	Remarks	Page
HPL boards Fiber cement boards Rockpanel boards	Glued or mechanically visible (riveted)	KW1	System with non-passive brackets	36
		KW1 PAS	System with passive brackets	38
		KW3 PAS	System with passive brackets	40
		KW4 PAS	System with passive brackets	42
		KWE	Rod system	62
		FTF	Ceiling system	58
	Mechanical invisible (catch)	KWRW	catch system	44
Flat composite boards	Glued or mechanically visible (riveted)	KW1	System with non-passive brackets	36
		KW1 PAS	System with passive brackets	38
		KW3 PAS	System with passive brackets	40
		KW4 PAS	System with passive brackets	42
		KWE	Rod system	62
		FTF	Ceiling system	58
Composite, steel or aluminum cassettes	Mechanical invisible (catch)	KWRY	catch system	48
		KWRCY	Rod-catch system	64
Quartz sinter boards	Glued or mechanically visible (riveted)	KW1	System with non-passive brackets	36
		KW1 PAS	System with passive brackets	38
		KW3 PAS	System with passive brackets	40
		KW4 PAS	System with passive brackets	42
		KWE	Rod system	62
		FTF	Ceiling system	58
	Mechanical invisible (catch)	KWRW	catch system	44
	Mechanical visible (catch)	KCS	catch system	52
		KWRO	Rod-catch system	66
Architectural concrete	Mechanical invisible (catch)	KWRW	catch system for lighter boards	44
		KWRZ	catch system for heavier boards	46
Stone boards	Mechanical invisible (catch)	KWRW	catch system for lighter boards	44
		KWRZ	catch system for heavier boards	46
		KCS	catch system	52
		KCP	catch system for boards in a passing arrangement	56
Photovoltaic panels Glass panels	Mechanical invisible (catch) with structural gluing up	KWRY	catch system	48
		KWRCY	Rod-catch system	64
	Mechanical visible (hook)	KCS	catch system	52
		KWRO	Rod-catch system	66
Net - expanded metal frameless	Mechanical visible (riveted with or without additional hooks)	KW1	System with non-passive brackets	36
		KW1 PAS	System with passive brackets	38
		KW3 PAS	System with passive brackets	40
		KW4 PAS	System with passive brackets	42
		KWE	Rod system	62
		FTF	Ceiling system	58
Net - expanded metal with frame	Mechanical invisible (catch)	KWRY	catch system	48
		KWRCY	Rod-catch system	64

LEGEND

Product subject to the National Technical Assessment issued by the Research Institute for Roads and Bridges for use in traffic construction

Product tested at the Building Research Institute

Product marked with the B construction mark

Product covered by the European Technical Assessment

Product tested for the fire requirements stipulated in the § 225 of the Ordinance of the Minister of Infrastructure

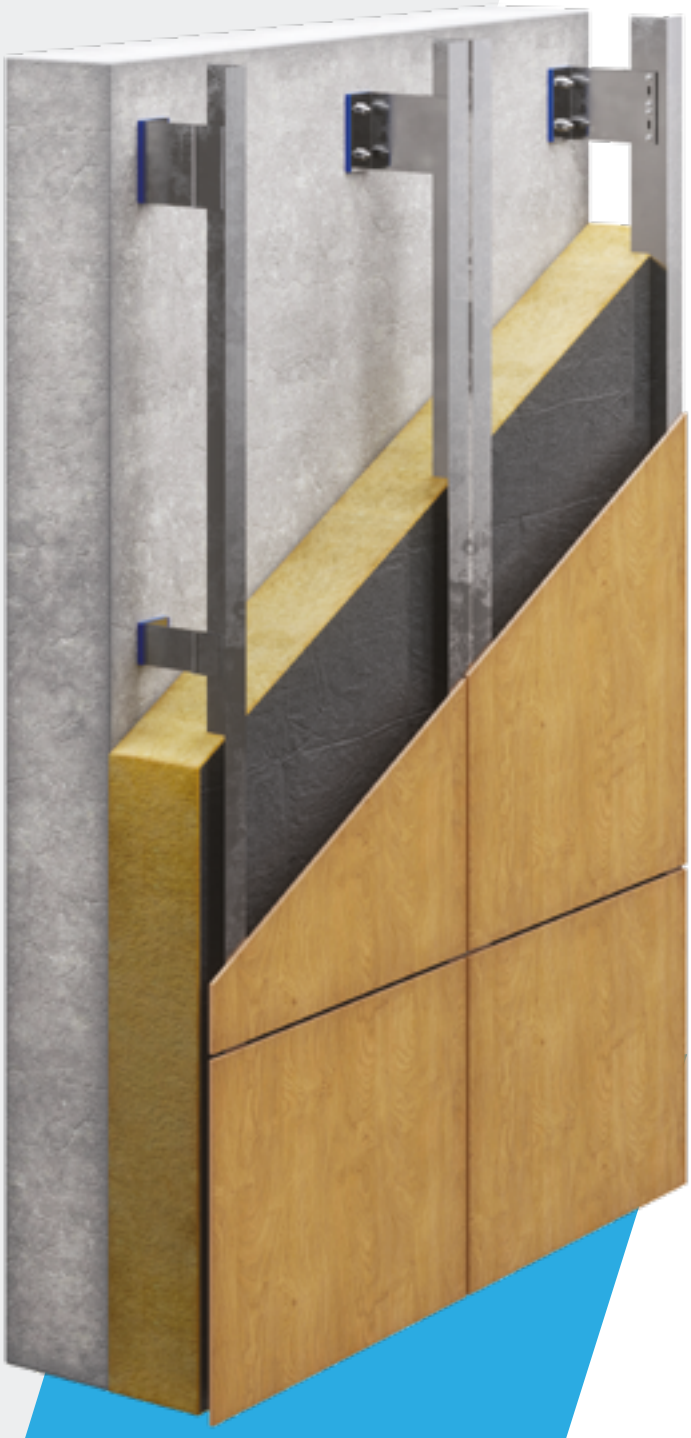
Product suitable for heavy loads

Product intended primarily for interior cladding

Product meeting increased thermal insulation requirements

BSP KW System

VISUALIZATION SYSTEMU



BSP KW substructure system is the most standard and universal substructure system for fixing many different types of cladding on outdoor and indoor walls acc. to the ventilated facade technology. The system consists of KW1 aluminum brackets and vertical aluminum profiles - angular and T-shaped. The most commonly used profiles are angle profiles KWR2 and KWR10 as well as T-profiles KWR1 and KWR9. Profiles are illustrated on page 28.

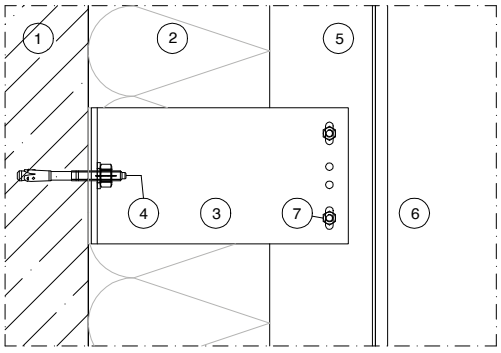
KW1 brackets are illustrated on page 20.

In the BSP KW system, the facade cladding is attached directly to the profiles by means of rivets, screws or a glued system. Similar to the KW1 brackets, the profiles are characterized by high strength due to their depth and wall thickness. This makes it possible to increase spacing of brackets and thus, reduce their number.

COMPONENTS OF THE SYSTEM		
Product	**Symbol**	**Remarks**
Aluminum brackets	KW1	See page 20
Angular profiles	KWR2	See page 28
	KWR10	See page 32
T-profiles	KWR1	See page 28
		See page 31
AUXILIARY ELEMENTS		
Bracket extension	KWP1	See page 74
Washer	HDPE	See page 79

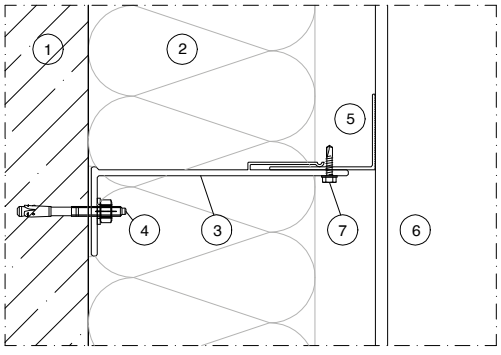
TECHNICAL DETAILS

Vertical detail



1. Building structure
2. Thermal insulation
3. BSP KW1 bracket
4. Fixing anchor
5. BSP angle profile
6. Cladding
7. Mounting screw

Horizontal detail



BSP KW1
PAS System

VISUALIZATION SYSTEMU

BSP KW1 PAS sub-structure system, similarly to the BSP KW system, is a standard and a universal sub-structure system for attaching many different types of cladding to outdoor and indoor walls acc. to the ventilated facade technology. The system consists of KW1 PAS passive brackets and vertical aluminum profiles - angular and T-shaped. The most commonly used profiles are angle profiles KWR2 and KWR10 as well as T-profiles KWR1 and KWR9. Profiles are illustrated in page 28.

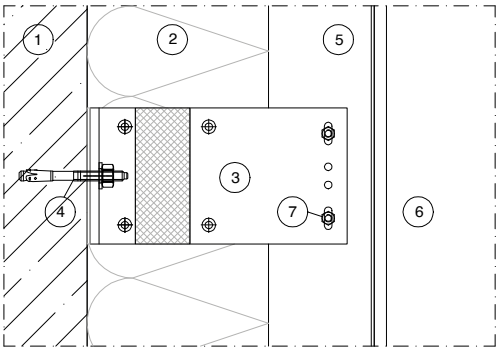
KW1PAS brackets are illustrated on page 21.

In the BSP KW1 PAS system, the facade cladding is attached directly to the profiles by means of rivets, screws or a glued system. The profiles are characterized by high strength due to their depth and wall thickness. This makes it possible to increase the spacing of the brackets and thus, reduce their number.

COMPONENTS OF THE SYSTEM		
Product	**Symbol**	**Remarks**
Passive brackets	KW1 PAS	See page 21
Angular profiles	KWR2	See page 28
	KWR10	See page 32
T-profiles	KWR1	See page 28
		See page 31
AUXILIARY ELEMENTS		
Washer	HDPE	See page 79

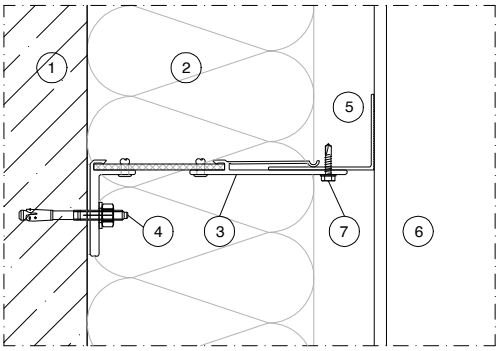
TECHNICAL DETAILS

Vertical detail



1. Building structure
2. Thermal insulation
3. BSP KW1 PAS bracket
4. Fixing anchor
5. BSP angle profile
6. Cladding
7. Fastening screw

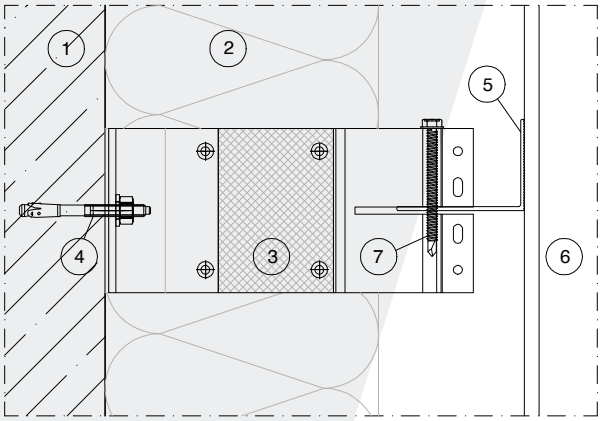
Horizontal detail



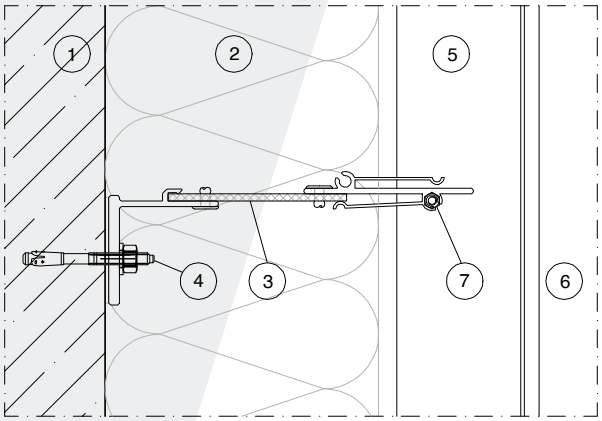
BSP KW3 PAS system

TECHNICAL DETAILS

Vertical detail



Horizontal detail



1. Building structure
2. Thermal insulation
3. BSP KA3 PAS bracket
4. Fixing anchor
5. BSP angle profile
6. Cladding
7. Mounting screw

BSP KW3 PAS substructure system is used when it is necessary to fix profiles horizontally (e.g. for vertical facade boards). This system consists of KW3 PAS passive brackets and horizontal aluminum profiles - angular and T-profiles. The most commonly used profiles are angle profiles KWR2 and KWR10 as well as T-profiles KWR1 and KWR9. The profiles are illustrated on page 28.

KW3 PAS brackets are illustrated on page 23.

In the BSP KW1 PAS system, the facade cladding is attached directly to the profiles by means of rivets, screws or a glued system. The profiles are characterized by high strength due to their depth and wall thickness. This makes it possible to increase the spacing of the brackets and thus, reduce their number.

COMPONENTS OF THE SYSTEM		
Product	**Symbol**	**Remarks**
Passive brackets	KW3 PAS	See page 23
Angular profiles	KWR2	See page 28
	KWR10	See page 32
T-profiles	KWR1	See page 28
		See page 31
AUXILIARY ELEMENTS		
Washer	HDPE	See page 79

BSP KW4 PAS system

VISUALIZATION SYSTEMU

BSP KW4 PAS substructure system, similarly to the BSP KW system, is a standard and universal substructure system for fixing many different types of cladding on indoor and outdoor walls acc. to the ventilated facade technology. The system consists of KW4 PAS passive brackets and vertical aluminum profiles - angular and T-shaped. The most commonly used profiles are angle profiles KWR2 and KWR10 as well as T-profiles: KWR1 and KWR9. The profiles are illustrated on page 28.

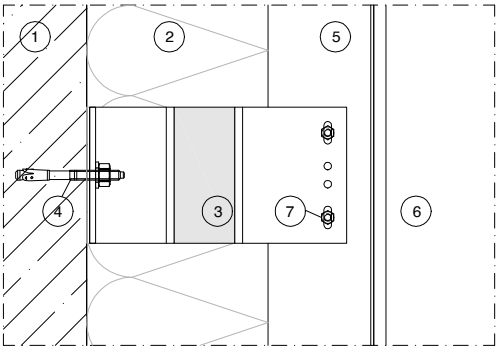
KW4 PAS brackets are illustrated on page 24.

In the BSP KW4 PAS system the facade cladding is attached directly to the profiles by means of rivets, screws or a glued system. Profiles are characterized by high strength due to their depth and wall thickness. This makes it possible to increase the spacing of the brackets and thus, reduce their number.

COMPONENTS OF THE SYSTEM		
Product	**Symbol**	**Remarks**
Passive brackets	KW4 PAS	See page 24
Angular profiles	KWR2	See page 28
	KWR10	See page 32
T-profiles	KWR1	See page 28
		See page 31
AUXILIARY ELEMENTS		
Washer	HDPE	See page 79

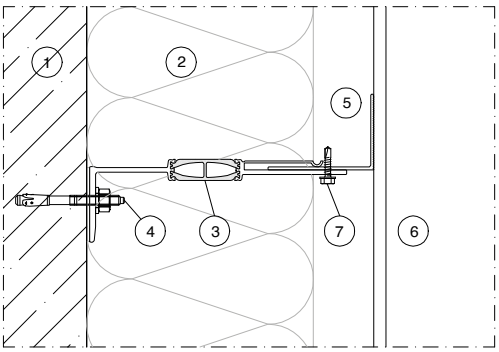
TECHNICAL DETAILS

Vertical detail



1. Building structure
2. Thermal insulation
3. BSP KW1 PAS bracket
4. Fixing anchor
5. BSP angle profile
6. Cladding
7. Mounting screw

Horizontal detail



BSP KWRW system

* - with passive brackets
** - with KW1 and KW1 PAS brackets
*** - with KW1 and KW4 PAS brackets

VISUALIZATION SYSTEMU

BSP KWRW catch substructure system is a system for mechanical invisible fixing of panels on the outdoor and indoor facade acc. to the ventilated facade technology. The system includes the following components:
- aluminum or passive brackets
- vertical aluminum profiles
- KWRW horizontal catch profiles
- KWRW catches

The type and dimensions of the brackets are selected on the basis of the project documentation, depending on the facade overhang and the strength and thermal requirements. For a description of the different types of brackets, see page 20. The most commonly used vertical profiles in the KWRW system are angle profiles KWR2 and KWR10, as well as T-profiles KWR1 and KWR9, illustrated on page 28.
In special cases KWR6 closed profiles, illustrated on page 59, are also used.

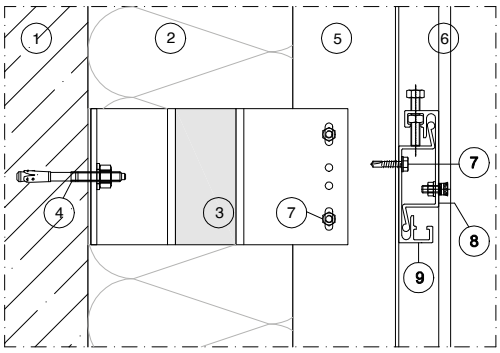
COMPONENTS OF THE SYSTEM		
Product	**Symbol**	**Remarks**
Aluminum brackets	**KW1**	See page 20
Passive brackets	KW1 PAS	See page 21
	KW4 PAS	See page 24
Angular profiles	KWR2	See page 28
	KWR10	See page 32
T-profiles	KWR1	See page 28
	KWR9	See page 31
Catch profiles	KWRW	
Catches	KWRW	
AUXILIARY ELEMENTS		
Bracket extension	KWP1	See page 74
Washer	HDPE	See page 79

KWRW horizontal catch profiles are most often fastened to vertical aluminum profiles with self-drilling screws. Vertical spacing of the profiles should be in accordance with the cladding manufacturer's guidelines. KWRW catches are manufactured from the same profile as the horizontal catch profiles, but they are turned 180 degrees in relation to them. We have four load-bearing catches carrying vertical loads from the weight of the facade and horizontal loads from suction and wind pressure - and sliding catches carrying the horizontal loads only.

The standard width of the catches is 60 mm. Load-bearing catches located at the upper edge of the panel are provided with M6 adjustment screws. The vertical position of the panel is adjusted by screwing or unscrewing the screws in the threaded holes of the catches. The height of the catches allows vertical adjustment within 10 mm. The catches are spot fixed in a board with rear-cutting anchors at a spacing according to the cladding manufacturer's specifications.

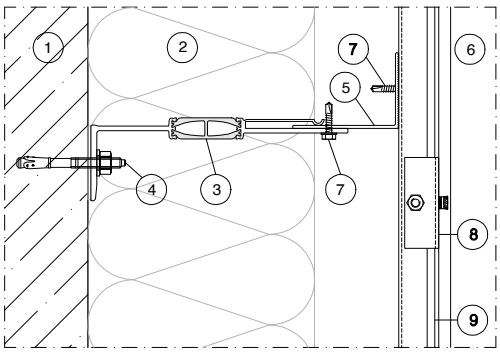
TECHNICAL DETAILS

Vertical detail

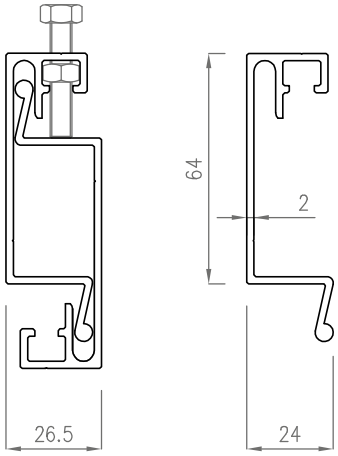


1. Building structure
2. Thermal insulation
3. BSP bracket
4. Fixing anchor
5. BSP angle profile
6. Cladding
7. Fastening screw
8. BSP KWRW catch
9. BSP KWRW profile

Horizontal detail



TECHNICAL DRAWING KWRW PROFILE



KWRW	
Ix	23,223 cm4
Wx	4,971 cm3
Iy	2,251 cm4
Wy	1,522 cm3
Area	3,154 cm2
Mass	0,852 kg/mb

BSP KWRZ system

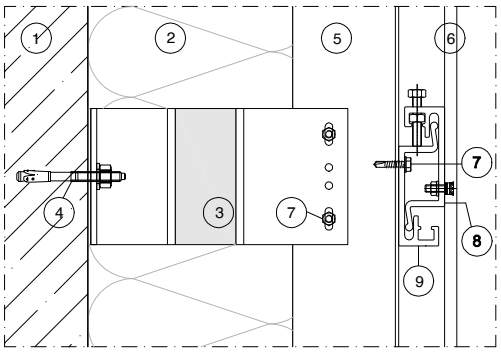
* - with passive brackets
** - with KW1 and KW1 PAS brackets
*** - with KW1 and KW4 PAS brackets

The BSP KWRZ catch substructure system is a stronger variant of the KWRW system intended for heavier cladding. KWRZ profiles and catches have the same shape and principle of operation as KWRW profiles and catches, except that they are up to 4 mm thicker, thereby increasing the load capacity of the entire system.

COMPONENTS OF THE SYSTEM		
Product	**Symbol**	**Remarks**
Aluminum brackets	**KW1**	**See page 20**
Passive brackets	KW1 PAS	See page 21
	KW4 PAS	See page 24
Angular profiles	KWR2	See page 28
	KWR10	See page 32
T-profiles	KWR1	See page 28
	KWR9	See page 31
Catch profiles	KWRZ	
Hooks	KWRZ	
AUXILIARY ELEMENTS		
Bracket extension	KWP1	See page 74
Washer	HDPE	See page 79

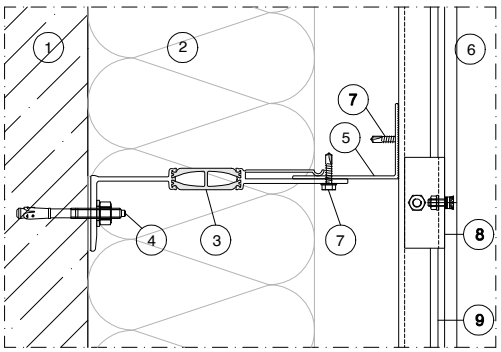
TECHNICAL DETAILS

Vertical detail

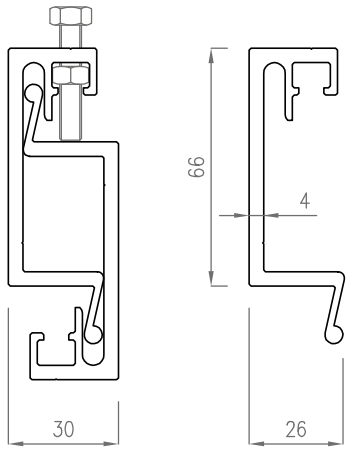


1. Structure of the building
2. Thermal insulation
3. BSP bracket
4. Fixing anchor
5. BSP angle profile
6. Cladding
7. Fixing screw
8. BSP KWRZ catch
9. BSP KWRZ profile

Horizontal detail



TECHNICAL DRAWING KWRZ PROFILE



KWRZ	
Ix	40,294 cm4
Wx	8,270 cm3
Iy	4,539 cm4
Wy	2,753 cm3
Area	5,781 cm2
Mass	1,561 kg/m

BSP KWRY system

* - with passive brackets
** - with KW1 and KW1 PAS brackets
*** - with KW1 and KW4 PAS brackets

VISUALIZATION SYSTEMU

BSP KWRY suspended substructure system is a system of mechanical fixing of new cassette panels, usually composite, aluminum or steel ones, on the indoor and outdoor facades acc. to the ventilated facade technology. The system includes the following components:
- aluminum or passive brackets
- vertical aluminum KWRY profiles
- KWZ catches

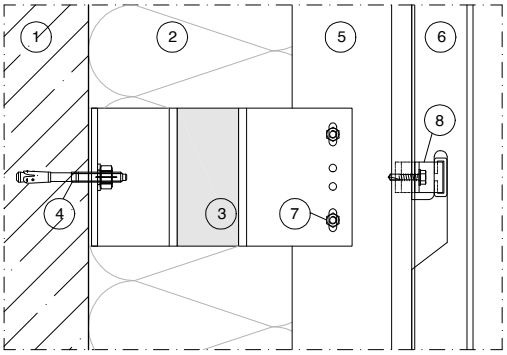
The type and dimensions of the brackets are selected on the basis of the project documentation, depending on the facade overhang and the strength and thermal requirements. For a description of the different types of brackets, see page 20.

KWRY aluminum profiles come in two depths - 50 and 80 mm. The shallower profiles are most often used in interiors, where the requirements for wear and tear are much smaller. 80 mm deep profiles, on the other hand, are used on outdoor facades.

COMPONENTS OF THE SYSTEM		
Product	**Symbol**	**Remarks**
Aluminum brackets	**KW1**	**See page 20**
Passive brackets	KW1 PAS	See page 21
	KW4 PAS	See page 24
Profiles	KWRY 80	
	KWRY 50	
Catches	KWZ	
AUXILIARY ELEMENTS		
Bracket extension	KWP1	See page 74
Washer	HDPE	See page 79

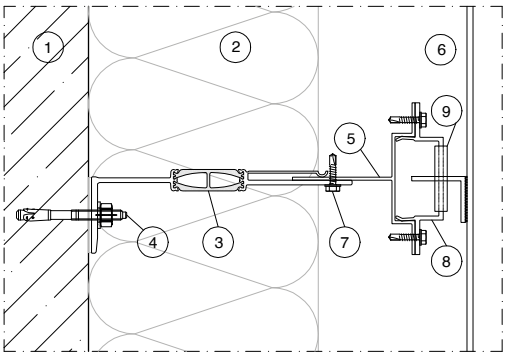
TECHNICAL DETAILS

Vertical detail



1. Structure of the building
2. Thermal insulation
3. BSP bracket
4. Fixing anchor
5. BSP KWRY profile
6. Cladding
7. Fastening screw
8. BSP KWZ catch
9. EPDM cap

Horizontal detail

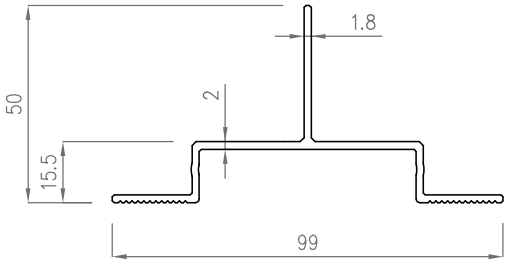


KWZ catches are shaped to match the KWRY profiles. Thanks to special „whiskers" spreading in the central, concave part of the profiles, the catches themselves hold them until permanent connection has been established. Fasteners for attaching the catches are selected on the basis of static calculations - most often they are self-drilling screws. The catches are additionally equipped with an EPDM seal to prevent any sound from vibrations caused by suction and wind pressure.

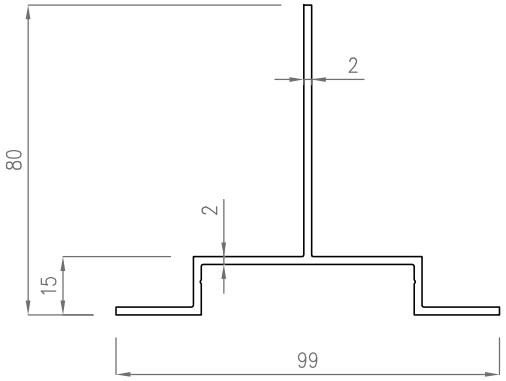
In the side folds of the cassette panels special holes are milled. Due to them the panels are mounted on the KWZ catches. The spacing of the catches should be in accordance with the cladding manufacturer's guidelines and/or in accordance with the design and static calculations made by an authorized constructor.

TECHNICAL DRAWING

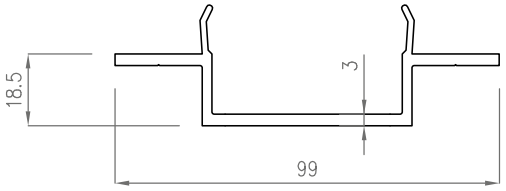
KWRY 50 PROFILE



KWRY 80 PROFILE



KWZ CATCH



KWRY50	
Ix	4,342 cm4
Wx	1,195 cm3
Iy	18,992 cm4
Wy	3,837 cm3
Area	3,024 cm2
Mass	0,819 kg/mb

KWRY80	
Ix	18,639 cm4
Wx	3,197 cm3
Iy	20,392 cm4
Wy	4,120 cm3
Area	3,800 cm2
Mass	1,025 kg/mb

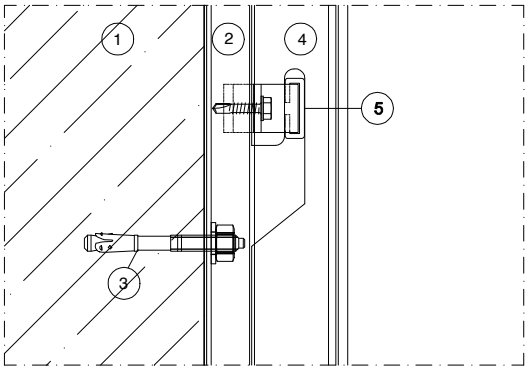
BSP RWY system

The BSP RWY suspended substructure system is a variant of the KWRY system, where the profile has an „Omega" shape and is attached directly to the wall without the bracket. This solution is most frequently used in interiors, where there is no thermal insulation layer and a minimum overhang of the cladding from the wall is required. The general principle of the RWY system and the method of fixing of the cladding are the same as for the KWRY system, with the same KWZ catches.

COMPONENTS OF THE SYSTEM		
Product	**Symbol**	**Remarks**
Profiles	RWY	
Catches	KWZ	See page 49

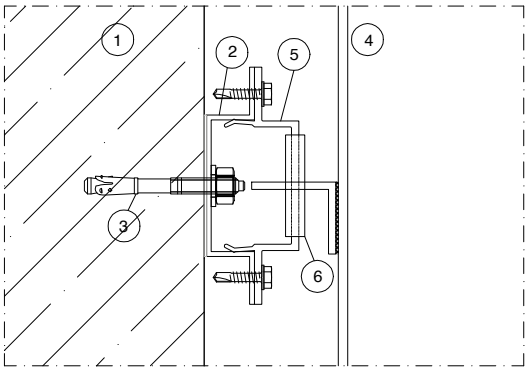
TECHNICAL DETAILS

Vertical detail

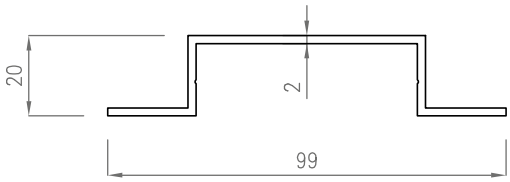


1. Building structure
2. BSP RWY profile
3. Fixing anchor
4. Cladding
5. BSP KWZ catch
6. EPDM cap

Horizontal detail



TECHNICAL DRAWING PROFIL RWY



RWY	
Ix	1,785 cm4
Wx	1,622 cm3
Iy	21,996 cm4
Wy	4,444 cm3
Area	2,697 cm2
Mass	0,728 kg/mb

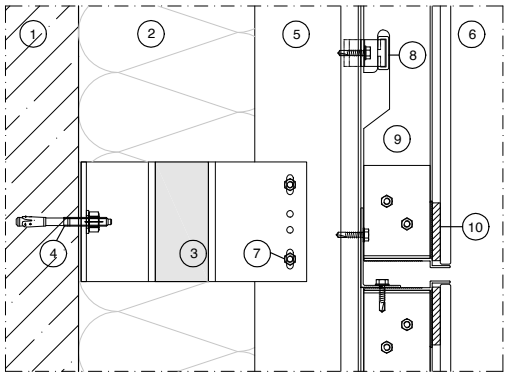
* - with passive brackets
** - with KW1 and KW1 PAS brackets
*** - with KW1 and KW4 PAS brackets

BSP KWRY system for structural bonding

VISUALIZATION SYSTEMU

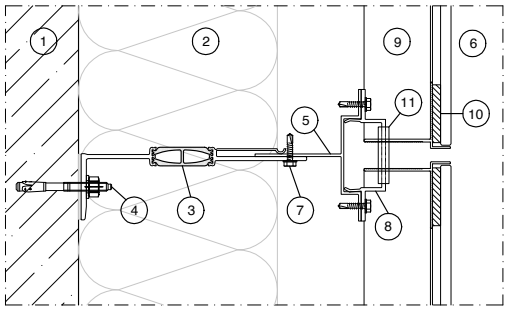
TECHNICAL DETAILS

Vertical detail



1. Building structure
2. Thermal insulation
3. BSP bracket
4. Fixing anchor
5. BSP KWRY profile
6. Cladding
7. Fastening screw
8.BSP KWZ catch
9. BSP KWN profile frame
10. Structural bonding
11. EPDM overlay

Horizontal detail



COMPONENTS OF THE SYSTEM		
Product	**Symbol**	**Remarks**
Aluminum brackets	**KW1**	**See page 20**
Passive brackets	KW1 PAS	See page 21
	KW4 PAS	See page 24
Profiles	KWRY 80	See page 49
	KWRY 50	See page 49
Catches	KWZ	See page 49
Frame profiles	-	Adjusted individually
AUXILIARY ELEMENTS		
Bracket extension	KWP1	See page 74
Washer	HDPE	See page 79

The BSP KWRY suspended substructure system can also be used to mount glass or photovoltaic panels acc. to structural adhesive technology. The substructure attached to the wall in this case is no different from the standard KWRY system. Glass or photovoltaic panels, on the other hand, are attached to frames made of BSP aluminum profiles in structural bonding technology. Milled holes are made in the aluminum frames, due to which the panel is installed on the KWZ catches. This system enables glass and photovoltaic facades to be attached invisibly.

System BSP KCS

* - with passive brackets
** - with KW1 and KW1 PAS brackets
*** - with KW1 and KW4 PAS brackets

VISUALIZATION SYSTEMU

The BSP KCS catch substructure system is a system for the mechanical fixing of panels, most often glass, stone, ceramic or photovoltaic, to an indoor and outdoor facade acc. to ventilated facade technology. The BSP KCS catch substructure system is a system for mechanical fixing of panels, most often glass, stone, ceramic or photovoltaic, on an indoor and outdoor facade acc. to ventilated facade technology. The system includes the following components:
- aluminum or passive brackets
- KCL and KCT vertical aluminum profiles
- KC catches

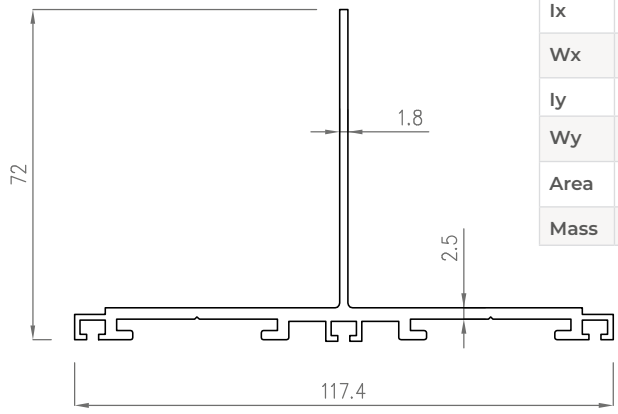
The type and dimensions of the brackets are selected on the basis of the project documentation, depending on the facade overhang and the strength and thermal requirements. For a description of specific types of brackets, see page 20.

KCT aluminum profiles are T-profiles intended for use at the joint of the panels. KCL aluminum profiles, on the other hand, are angle profiles used as support profiles in the center of the panels. The profiles have special slots for fastening gaskets and rail guides for fastening the catches, so that they are all fixed in a straight line. In addition, the guides provide additional security against catches being pulled out of the profiles.

COMPONENTS OF THE SYSTEM		
Product	**Symbol**	**Remarks**
Aluminum brackets	**KW1**	**See page 20**
Passive brackets	KW1 PAS	See page 21
	KW4 PAS	See page 24
Angular profiles	KCL	
T-profiles	KCT	
Catches	KC1	
	KC2	
	KC3	
	KC4	
AUXILIARY ELEMENTS		
Bracket extension	KWP1	See page 74
Washer	HDPE	See page 79

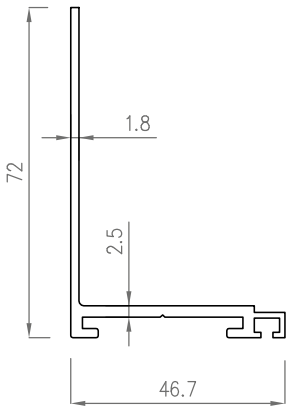
TECHNICAL DRAWING

KCT PROFILE



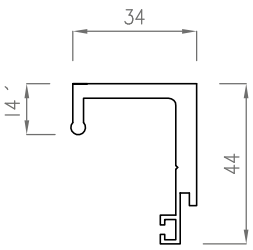
KCT	
Ix	15,309 cm4
Wx	2,573 cm3
Iy	43,667 cm4
Wy	7,439 cm3
Area	5,134 cm2
Mass	1,386 kg/mb

KCL PROFILE

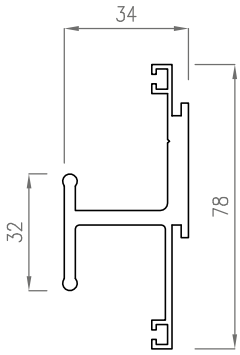


KCL	
Ix	12,288 cm4
Wx	2,349 cm3
Iy	6,472 cm4
Wy	1,932 cm3
Area	2,699 cm2
Mass	0,729 kg/mb

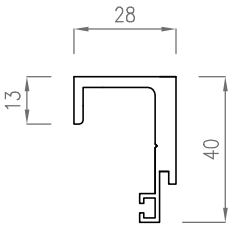
CATCH KC1



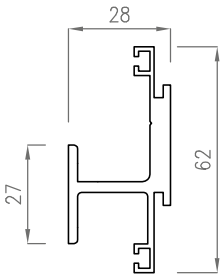
CATCH KC2



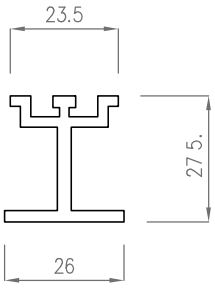
CATCH KC3



CATCH KC4

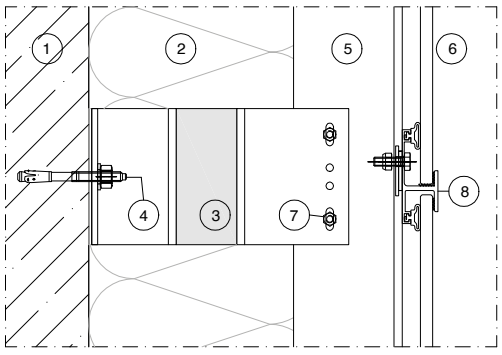


CATCH KC5



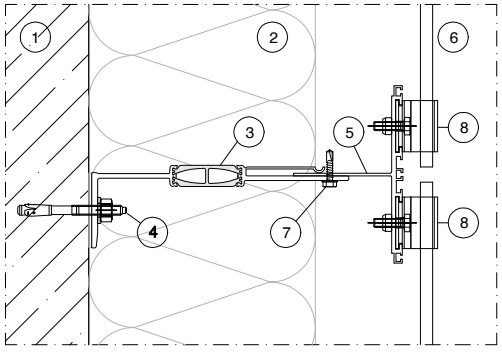
TECHNICAL DETAILS

Vertical detail



1. Building structure
2. Thermal insulation
4. Fixing anchor
5. BSP KCT profile
6. Cladding
3. BSP bracket
7. Mounting screw
8. KC4 catch

Horizontal detail



KC3 catches are extreme catches used for fixing panels at the low and top edges of the facade. KC4 catches, on the other hand, are intermediate catches used for vertical connection of two panels in the middle part of the facade. The catches have a special groove matching the guides of KCT and KCL profiles.

They also have slots for attaching gaskets that displace the panels and are equipped with self-adhesive gaskets that prevent direct contact between glass and the aluminum. Standard width of the catches equals 34 mm. Because of the visible part of the catches they can be powder-coated in any color.

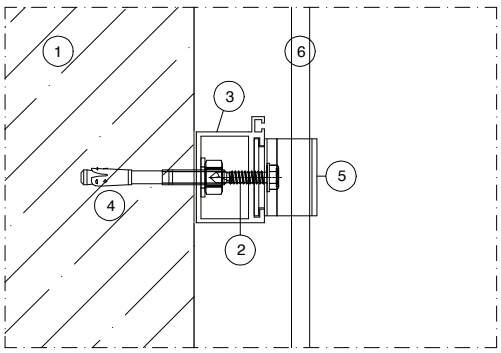
BSP KCO system

The BSP KCO catch substructure system is a variant of the KCS system, where the profile is closed and attached directly to the wall without brackets. This solution is used most often in interiors where there is no thermal insulation layer and a minimal overhang of the cladding from the wall is required. The general principle of the KCO system and the method of fixing of the cladding are the same as for the KCS system with the same KC catches.

COMPONENTS OF THE SYSTEM		
Product	**Symbol**	**Remarks**
Profiles	**KCO**	
Catches	KC1	See page 53
	KC2	
	KC3	
	KC4	

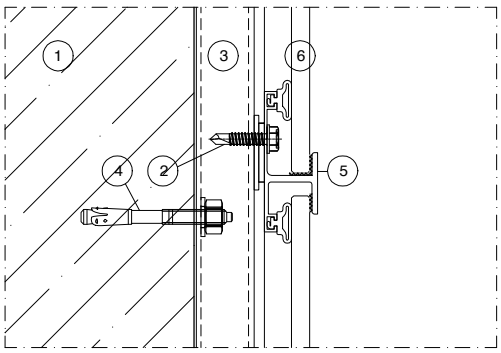
TECHNICAL DETAILS

Vertical detail

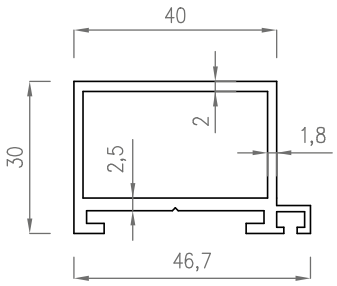


1. Building structure
2. Fixing screw
3. BSP profile KCO
4. Fixing anchor
5. KC4 catch
6. Cladding

Horizontal detailail



TECHNICAL DRAWING KCO PROFILE



KCO	
Ix	3,610 cm4
Wx	2,263 cm3
Iy	7,223 cm4
Wy	2,844 cm3
Area	3,084 cm2
Mass	0,833 kg/m

BSP KCP system

SYSTEM VISUALIZATION

* - with passive brackets

The BSP KCP catch substructure system is a system for mechanical installation of boards, usually stone ones, on the outdoor and indoor facades acc. to ventilated facade technology. The system is dedicated to heavier cladding with irregular vertical joints. The system includes the following components:
- aluminum or passive brackets
- vertical aluminum profiles
- horizontal KCP aluminum profiles
- KC catches

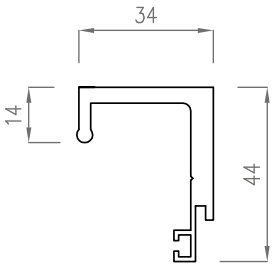
Type and dimensions of the brackets are selected on the basis of the project documentation, depending on the facade overhang and the strength and thermal requirements. For a description of the different types of brackets, see page 20.

The most commonly used vertical profiles are BSP KWR1 T-profiles and BSP KWR2 angle profiles. Alternatively, other profiles from the BSP range can be used depending on the static calculations. The BSP KWR1 aluminum profiles are T-profiles used to connect KCP horizontal profiles. BSP KWR2 aluminum profiles, on the other hand, are angle profiles used as support profiles in the center of the KCP horizontal profiles.

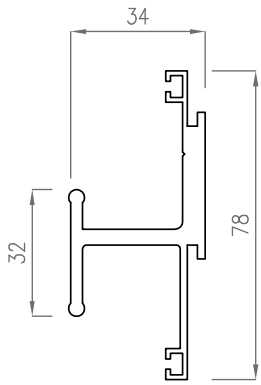
COMPONENTS OF THE SYSTEM		
Product	**Symbol**	**Remarks**
Aluminum brackets	**KW1**	**See page 20**
Passive brackets	KW1 PAS	See page 21
	KW4 PAS	See page 24
Angular profiles	KWR2	See page 28
T-profiles	KWR1	See page 28
Horizontal profiles	KCP	
Catches	KC1	
AUXILIARY ELEMENTS		
Bracket extension	KWP1	See page 74
Washer	HDPE	See page 79

TECHNICAL DRAWING

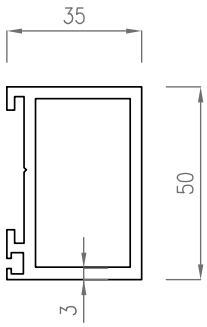
CATCH KC1



CATCH KC2



PROFILE KCP



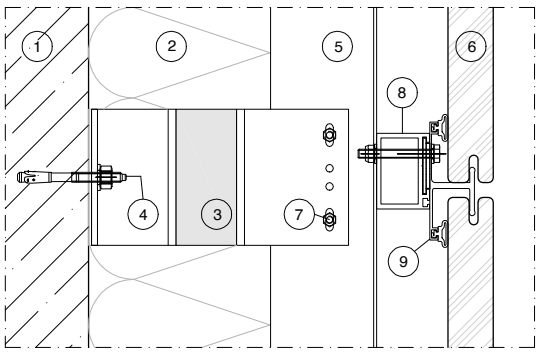
KCP	
Ix	7,861 cm4
Wx	4,355 cm3
Iy	16,695 cm4
Wy	6,526 cm3
Area	5,018 cm2
Mass	1,355 kg/mb

Horizontal BSP KCP profiles are rectangular profiles characterized by relatively high strength. They are attached to vertical aluminum profiles selected on the basis of static calculations. KCP profiles have rail guides for attaching the catches, which facilitates their rectilinear location. Thanks to the possibility of locating the catches in a horizontal line in any way, the BSP KCP system is ideal for fixing panels in a system with continuous horizontal joints and irregular vertical joints passing each other.

KC1 catches are terminal catches, used to attach panels at the lower and upper edges of the facade. KC2 catches, on the other hand, are intermediate catches, used for vertical connection of two panels in the middle part of the facade. The catches have a special groove matching the guides of the KCP profiles. They also have slots for attaching gaskets that support the panels. The standard width of the catches equals 34 mm. Due to the visible part of the catches, they can be painted in any color using the powder coating method.

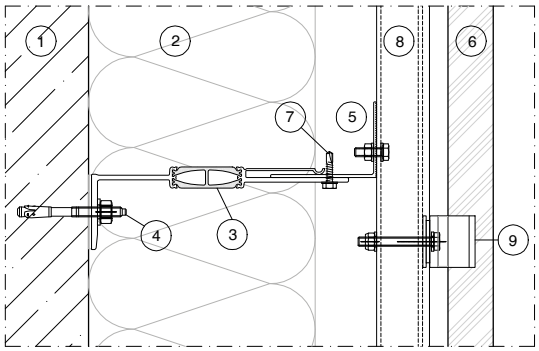
TECHNICAL DETAILS

Vertical detail



1. Building structure
2. Thermal insulation
3. BSP bracket
4. Fixing anchor
5. BSP angle profile
6. Cladding
7. Fastening screw
8. BSP profile KCP
9. BSP catch KC2

Horizontal detail



System BSP FtF

VISUALIZATION SYSTEMU

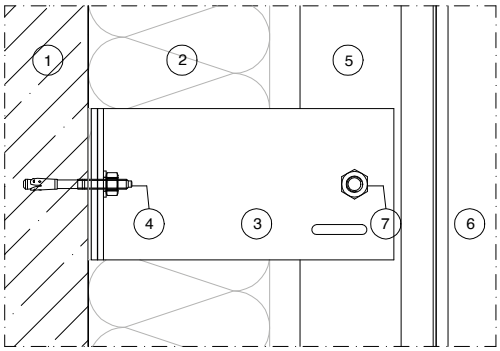
The BSP FtF (Floor to Floor) substructure system is designed to minimize the number of spot fixings between the facade and the building structure. The advantage of this system is the increased span of the bracket assembly due to the increased stiffness of the profile and the strength of the brackets, which are usually only attached to reinforced concrete ceilings. This solution is used in old buildings where the masonry infill is a very insecure substrate or in steel structures with large transom spans. The system consists of K1 and K2 aluminum brackets and KWR6 vertical aluminum profiles.

The K1 and K2 brackets are made from aluminum. They have the shape of a I-bar and have 8 mm base. They meet the increased load-bearing requirements resulting from the distribution of brackets in a large spacing, mostly in a storey system.

COMPONENTS OF THE SYSTEM		
Product	**Symbol**	**Remarks**
Aluminum brackets	**K1**	**See page 9**
Profiles	KWR6	
AUXILIARY ELEMENTS		
Bracket extension	KP1	See page 11

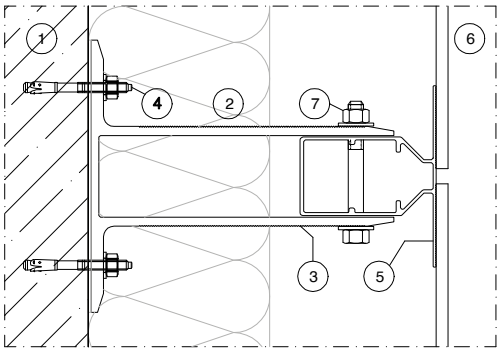
TECHNICAL DETAILS

Vertical detail



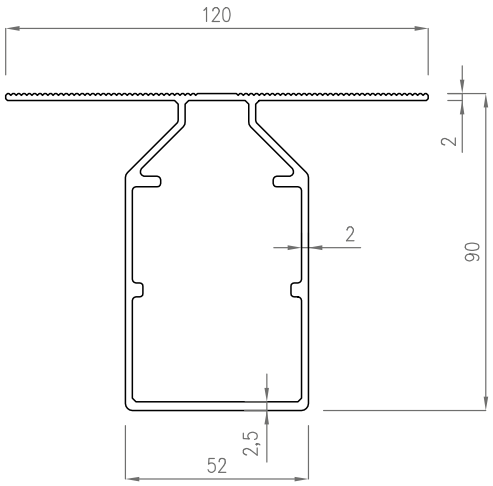
1. Building structure
2. Thermal insulation
3. BSP bracket K1
4. Fixing anchor
5. BSP profile KWR6
6. Cladding
7. Fastening screw

Horizontal detail



TECHNICAL DRAWING

KWR6 PROFILE



KWR6 profiles are characterized primarily by high rigidity. The closed shape of the profile cross-section prevents torsion and sagging. In the BSP FtF system the facade cladding is most frequently fastened directly to the profiles by means of rivets, screws or a glued system. However, there are other variants of this system, including fixing of the cladding with additional catch profiles, such as KWRW and KWRZ.

KWR6	
Ix	95,865 cm4
Wx	17,540 cm3
Iy	58,829 cm4
Wy	9,805 cm3
Area	8,536 cm2
Mass	2,305 kg/mb

System BSP FtF with KWRW or KWRZ

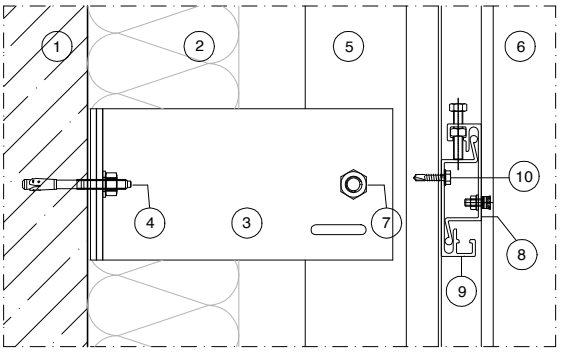
* - with passive brackets
** - with KW1 and KW1 PAS brackets
*** - with KW1 and KW4 PAS brackets

The BSP FtF (Floor to Floor) substructure system can also be used in conjunction with the BSP KWRW or KWRZ catch system. The method of fixing of the cladding is the same as for the KWRW or KWRZ system, except that the horizontal catch profiles are attached to the vertical KWR6 profiles of the FtF system.

COMPONENTS OF THE SYSTEM		
Product	Symbol	Remarks
Aluminum brackets	K1	See page 9
Profiles	KWR6	See page 49
Catch profiles	KWRW	See page 45
	KWRZ	See page 46
Catches	KWRW	See page 45
		See page 46
AUXILIARY ELEMENTS		
Bracket extension	KP1	See page 11

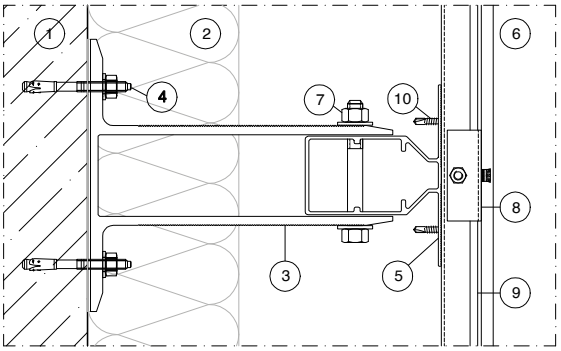
TECHNICAL DETAILS

Vertical detail



1. Building structure
2. Thermal insulation
3. BSP bracket K1
4. Fixing anchor
5. BSP profile KWR6
6. Cladding
7. Fastening screw
8. BSP KWRW catch
9. BSP KWRW profile
10. Fastening screw

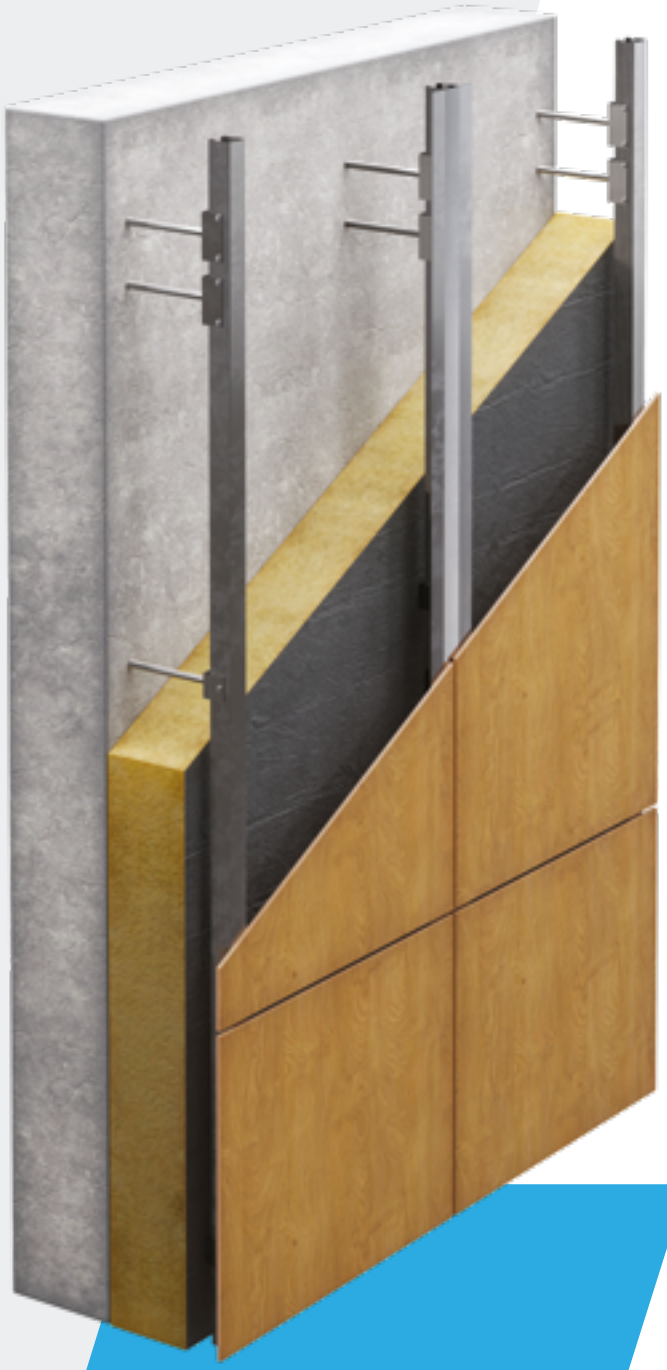
Horizontal detail




Pasteura
Kolosa
5

BSP KWE system

VISUALIZATION SYSTEMU



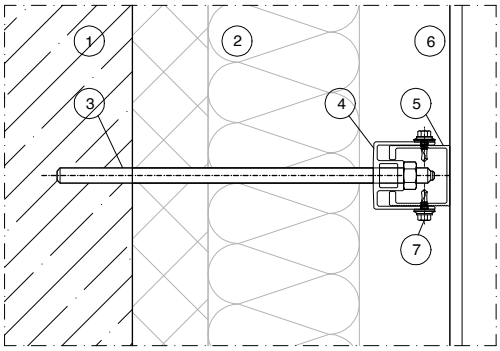
The BSP KWE substructure system is an innovative bar substructure system for attaching many different types of cladding to indoor and outdoor walls acc. to ventilated facade technology. The system was developed primarily for large-scale thermal modernizations of existing buildings. It enables direct anchoring in the building structure without need to remove and replenish parts of the existing thermal insulation. The system consists of steel threaded rods, KWE aluminum bracket and KWRP and KWRC vertical aluminum profiles.
KWE brackets are illustrated on page 27.

In the BSP KWE system, the facade cladding is attached directly to the profiles by means of rivets, screws or a glued system.

COMPONENTS OF THE SYSTEM		
Product	Symbol	Remarks
Brackets	KWE	See page 27
Profiles	KWRC	

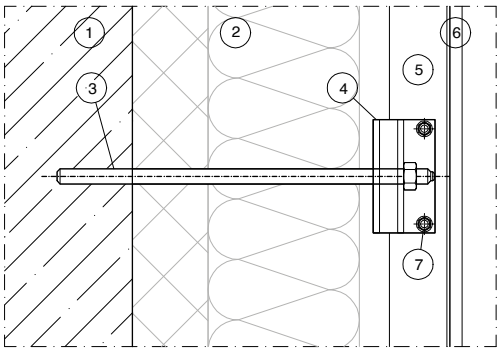
TECHNICAL DETAILS

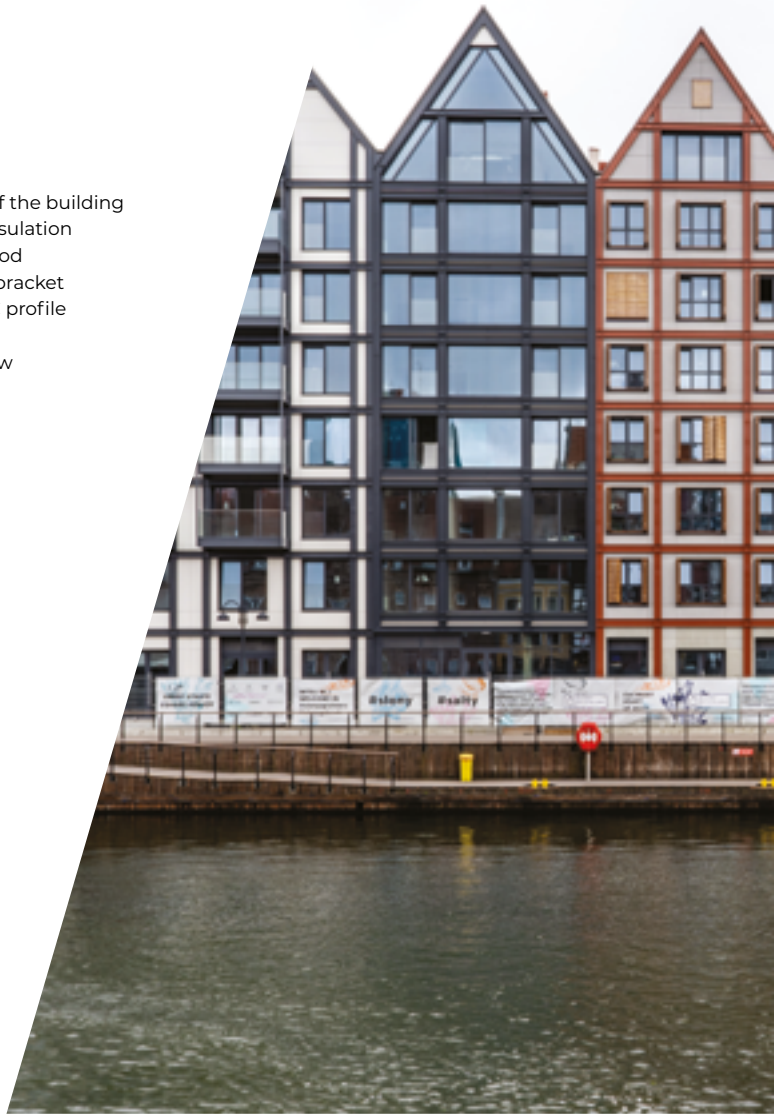
Vertical detail



1. Structure of the building
2. Thermal insulation
3. Threaded rod
4. BSP KWE bracket
5. BSP KWRC profile
6. Cladding
7. Fixing screw

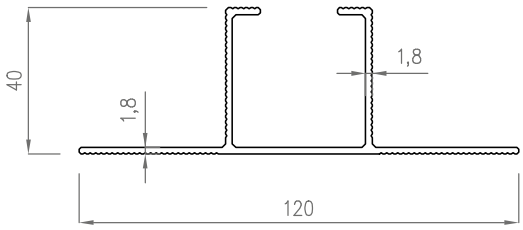
Horizontal detail





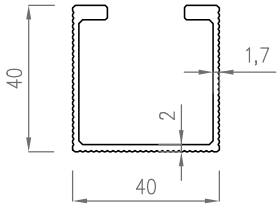
TECHNICAL DRAWING

KWRP PROFILE



KWRP	
Ix	7,230 cm4
Wx	2,493 cm3
Iy	29,680 cm4
Wy	4,945 cm3
Area	3,680 cm2
Mass	0,944 kg/mb

KWRC PROFILE



KWRC	
Ix	6,200 cm4
Wx	2,981 cm3
Iy	6,770 cm4
Wy	3,385 cm3
Area	2,590 cm2
Mass	0,699 kg/mb

BSP KWRCY system

VISUALIZATION SYSTEMU

The BSP KWRCY substructure system is a bar substructure system for mechanical fixing of cassette panels, usually composite, aluminum or steel ones on outdoor and indoor walls acc. to ventilated facade technology. The system was developed primarily for large-scale thermal upgrades of existing buildings. It makes it possible to anchor directly into the building structure without need to remove and replenish parts of the existing thermal insulation. The system includes the following components:
- steel threaded rods
- KWE aluminum brackets
- vertical aluminum KWRCY profiles
- KWZ catches

For a description of the KWE brackets, see p. 27.

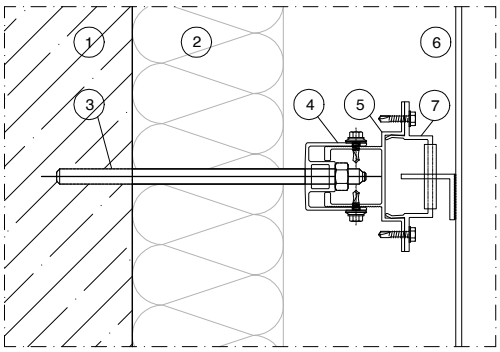
KWRCY profiles are equivalent to KWRY profiles, except that they are shaped to fit into KWE brackets, according to the details shown.

KWZ catches are shaped to match the KWRCY profiles. Thanks to special „whiskers" spreading in the central, concave part of the profiles the catches themselves hold them until permanent connection has been established. Fasteners for attaching the catches are selected on the basis of static calculations - the most common are self-drilling screws. The catches are additionally equipped with an EPDM gasket, preventing any sound from vibrations arising from suction and wind pressure.

Special holes are milled in the side folds of the cassette panels. Due to them the panels are mounted on the KWZ catches. The spacing of the catches should be in accordance with the manufacturer's guidelines and/or in accordance with the design and static calculations made by an authorized designer.

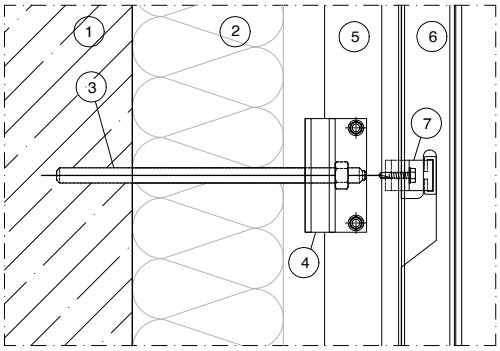
TECHNICAL DETAILS

Vertical detail



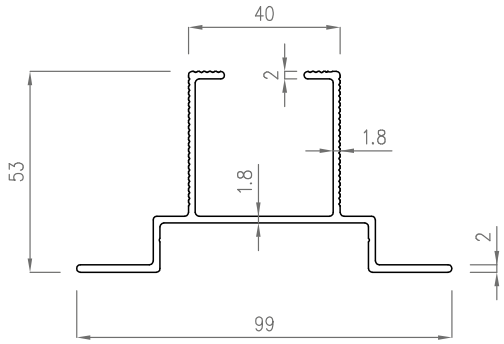
1. Building structure
2. Thermal insulation
3. Threaded rod
4. BSP KWE bracket
5. BSP KWRCY profile
6. Cladding
7. BSP KWZ catch

Horizontal detail

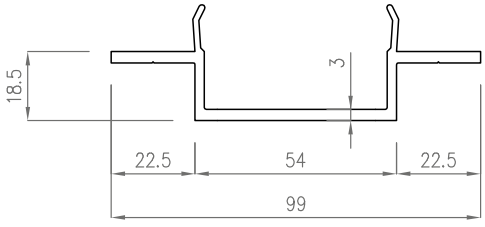


TECHNICAL DRAWING

KWRCY PROFILE



KWZ CATCH



COMPONENTS OF THE SYSTEM		
Product	**Symbol**	**Remarks**
Brackets	**KWE**	**See page 27**
Profiles	KWRCY	
Catches	KWZ	

KWRCY	
Ix	**11,178 cm4**
Wx	**3,364 cm3**
Iy	24,724 cm4
Wy	4,994 cm3
Area	3,909 cm2
Mass	1,055 kg/mb

BSP KWRO system

VISUALIZATION SYSTEMU

The BSP KWRO substructure system is a bar substructure system for the mechanical fixing of panels, usually glass, stone or ceramic ones or photovoltaic panels on outdoor and indoor walls acc. to ventilated facade technology. The system was developed primarily for large-scale thermal upgrades of existing buildings. It makes it possible to anchor directly into the building structure without need to remove and replenish parts of the existing thermal insulation. The system includes the following components:

- steel threaded rods
- KWE aluminum brackets
- vertical aluminum KCO profiles
- KC catches

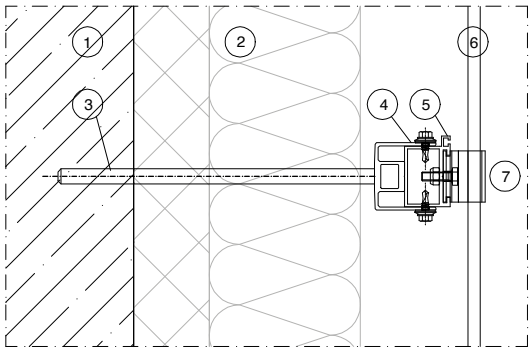
For a description of the KWE brackets, see page 27.

KCO profiles are closed profiles, shaped to be fixed in KWE brackets. The profiles have special slots for fastening gaskets and rail guides for fastening the catches, so that they are all fastened in a straight line. In addition, the guides provide additional security against catches being pulled out of the profiles.

KC3 catches are terminal catches, used to attach panels at the lower and upper edges of the facade. KC4 catches, on the other hand, are intermediate catches used for vertical connection of two panels in the middle part of the facade. The catches have a special groove matching the guides of the KCT and KCL profiles. They also have slots for attaching gaskets that displace the panels and are equipped with self-adhesive gaskets that prevent direct contact between glass and the aluminum. The standard width of the catches is 34 mm. Due to the visible part of the catches, they can be painted in any color by powder coating.

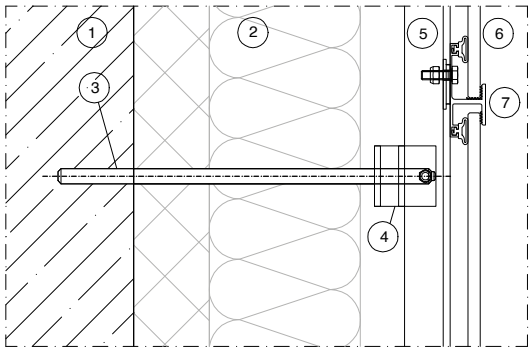
TECHNICAL DETAILS

Vertical detail



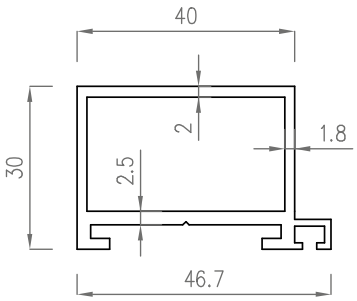
1. Building structure
2. Thermal insulation
3. Threaded rod
4. BSP KWE bracket
5. BSP KCO profile
6. Cladding
7. BSP KC catch

Horizontal detail



TECHNICAL DRAWING

KCO PROFILE



KCO	
Ix	3,610 cm4
Wx	2,263 cm3
Iy	7,223 cm4
Wy	2,844 cm3
Area	3,084 cm2
Mass	0,833 kg/mb

COMPONENTS OF THE SYSTEM		
Product	Symbol	Remarks
Brackets	KWE	See page 27
Profiles	KCO	
Catches	KC1	See page 53
	KC2	
	KC3	
	KC4	

Blinds

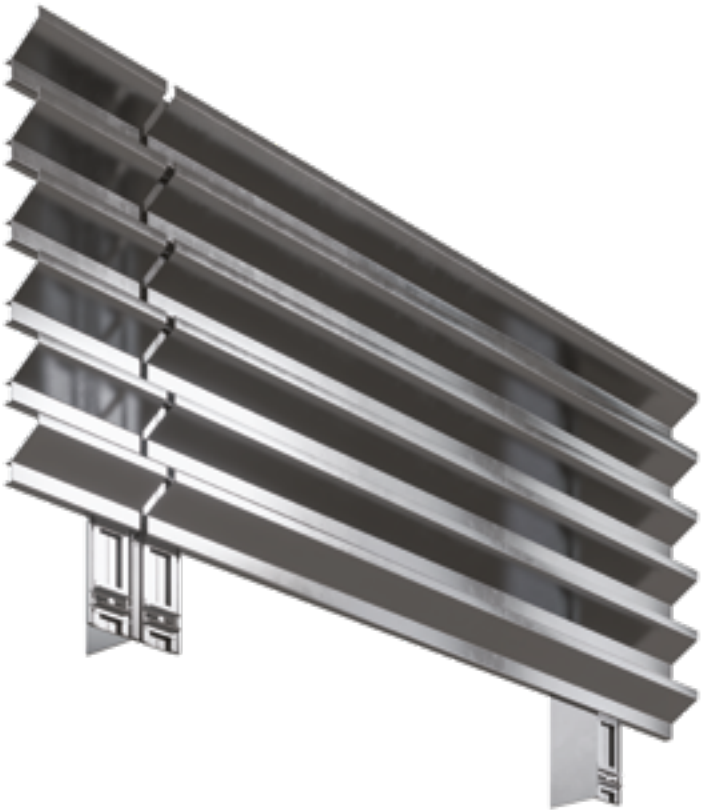
BSP BS system

The BSP BS blinds system includes both substructure elements and aluminum slats. It is primarily used on the roofs of buildings as a cover for technical equipment. The system includes the following components:
- aluminum or passive brackets
- vertical aluminum profiles KCT and KCL
- BSD1 spacers
- BSZ1 catches
- BSL1 slats

The type and dimensions of the brackets are selected on the basis of the project documentation, depending on the overhang of the blinds and the strength and thermal requirements. For a description of specific types of brackets, see page ..

The BS blind system uses KCT and KCL vertical profiles (the same ones used in the KCS system). KCT aluminum profiles are T-profiles, used at the joint of the slats. KCL aluminum profiles, on the other hand, are angle profiles used as support profiles in the center of the slats. The profiles have special rail guides for attaching the catches. In addition, the guides provide additional protection against pulling the catches out of the profiles.

VISUALIZATION

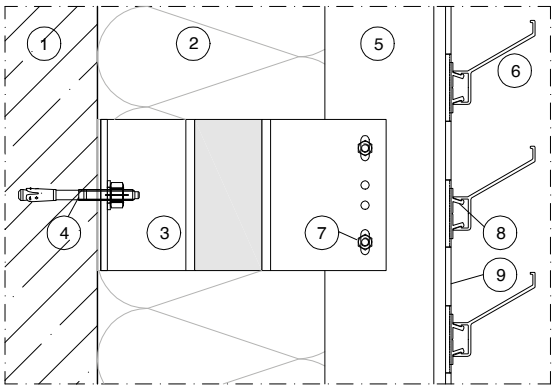


BSZ1 catches and BSD1 spacer elements are inserted alternately into the guides of the vertical profiles. By using fixed height spacer elements, the same spacing between the catches is achieved without necessity to measure their location every time. When sliding the elements into the profile guides there is no need to mechanically fix each element - it is enough to fix the first element from below and from above with a screw or a rivet, which has a positive effect on the ease and speed of installation.

BSL1 aluminum slats are hooked into BSZ1 catches by means of latching. By design, the blinds are fixed with the slats facing upwards, which enables free air flow while maintaining the lack of clearance from the lower perspective. In this way, the blind has a covering function.

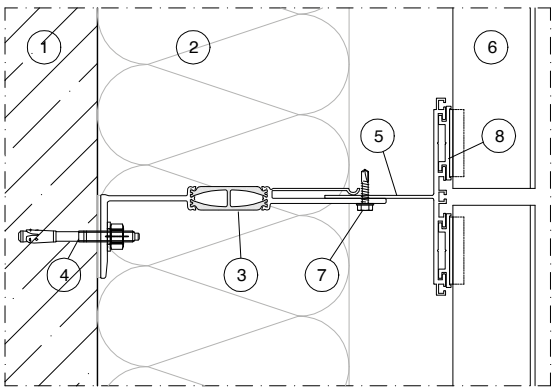
DETAIL

Vertical detail



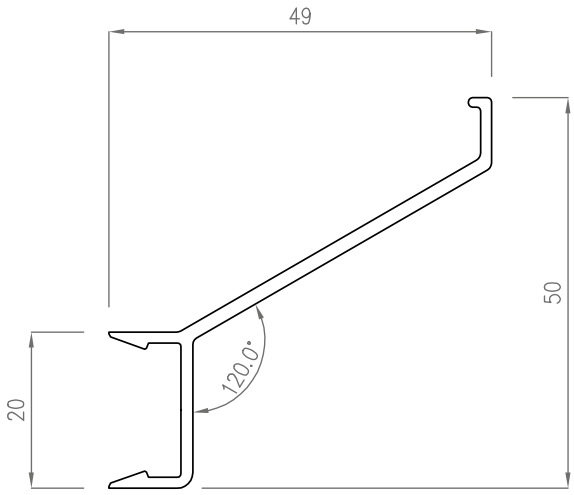
1. Building structure
2. Thermal insulation
3. BSP bracket
4. Fixing anchor
5. BSP KCT profile
6. BSP BSL-01 slat
7. Fastening screw
8. BSP catch BSZ-01
9.Distance BSP BSD-01

Horizontal detail

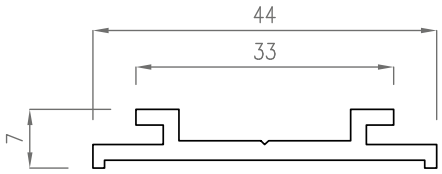


TECHNICAL DRAWING

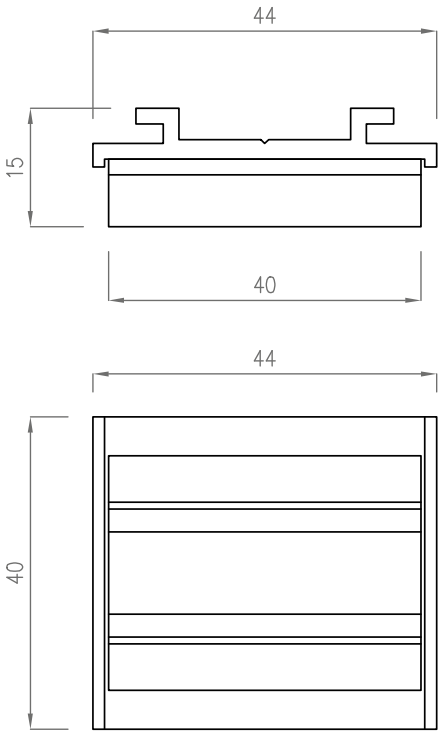
BSL-01 SLAT

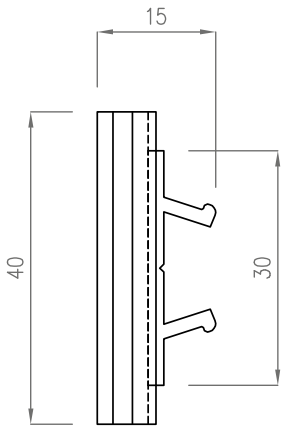


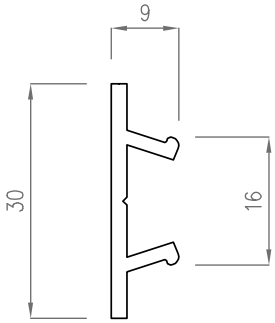
BSD-01 SPACER



BSZ-01 CATCH







Additional elements

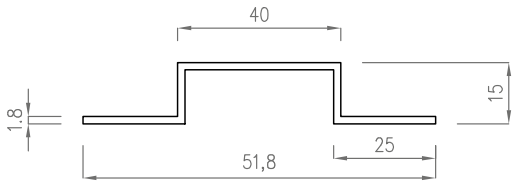
Omega type RW profiles

Omega type RW profiles have a number of applications. In interiors they are fixed directly to the wall, thus achieving a small overhang of the cladding. They can also be used with a cross substructure, i.e. fixed in horizontal orientation to vertical profiles. This solution is used with narrow vertical panels or facade boards.

TECHNICAL DRAWING

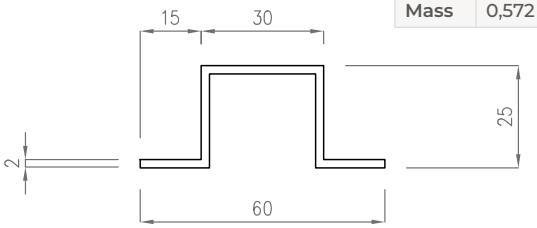
RW2A PROFILE

RW2A	
Ix	0,748 cm4
Wx	0,925 cm3
Iy	11,409 cm4
Wy	2,641 cm3
Area	2,030 cm2
Mass	0,548 kg/mb



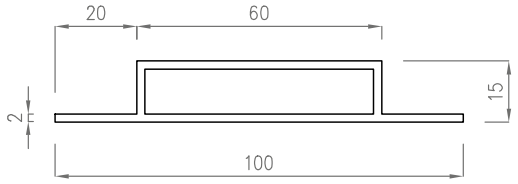
RW2D PROFILE

RW2D	
Ix	2,002 cm4
Wx	1,548 cm3
Iy	1,802 cm4
Wy	4,444 cm3
Area	2,120 cm2
Mass	0,572 kg/mb



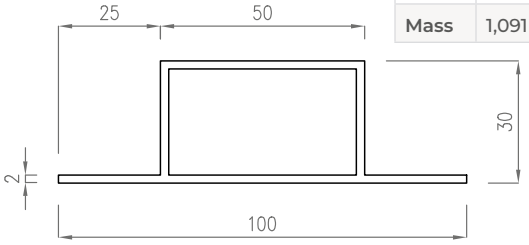
RW2B PROFILE

RW2B	
Ix	1,333 cm4
Wx	1,471 cm3
Iy	23,969 cm4
Wy	4,794 cm3
Area	3,640 cm2
Mass	0,983 kg/mb



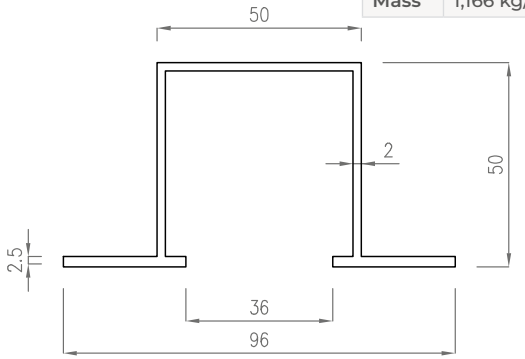
RW2E PROFILE

RW2E	
Ix	5,991 cm4
Wx	3,245 cm3
Iy	24,744 cm4
Wy	4,949 cm3
Area	4,040 cm2
Mass	1,091 kg/mb



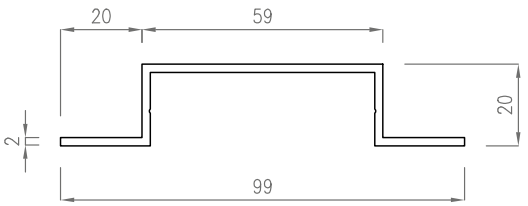
RW2C PROFILE

RW2C	
Ix	17,084 cm4
Wx	6,193 cm3
Iy	30,033 cm4
Wy	6,257 cm3
Area	4,320 cm2
Mass	1,166 kg/mb



RWY PROFILE

RWY	
Ix	1,785 cm4
Wx	1,622 cm3
Iy	21,996 cm4
Wy	4,444 cm3
Area	2,697 cm2
Mass	0,728 kg/mb

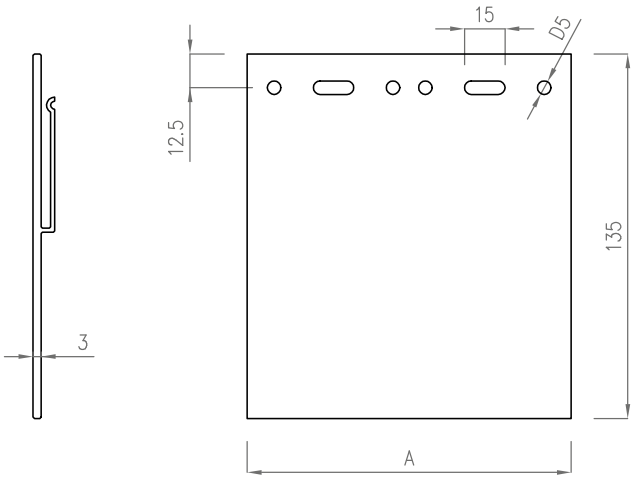


KWP1 extension (piece)

The KWP1 extension is fixed in brackets for ventilated facades (except for the KWE bracket), thus allowing an additional increase in the overhang of the substructure. It is often used where there are local faults in the building structure. Using the KWP1 extension we can achieve a overhang of the substructure of up to 450 mm.

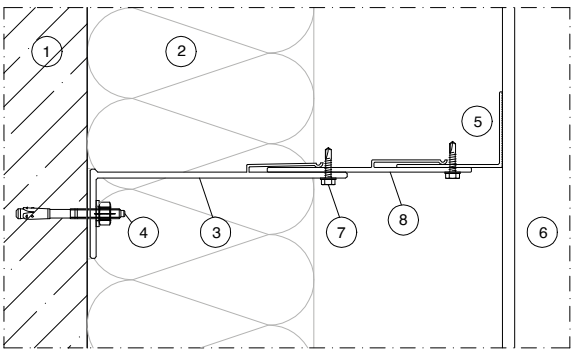
TECHNICAL DRAWING

KWP1 PROFILE



VISUALIZATION

DETAIL



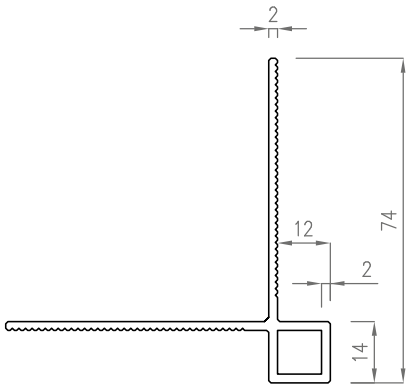
1. Building structure
2. Thermal insulation
3. BSP KW1 bracket
4. Fixing anchor
5. BSP angle profile
6. Cladding
7. Mounting screw
8. BSP KWP1 extension

KWN profiles

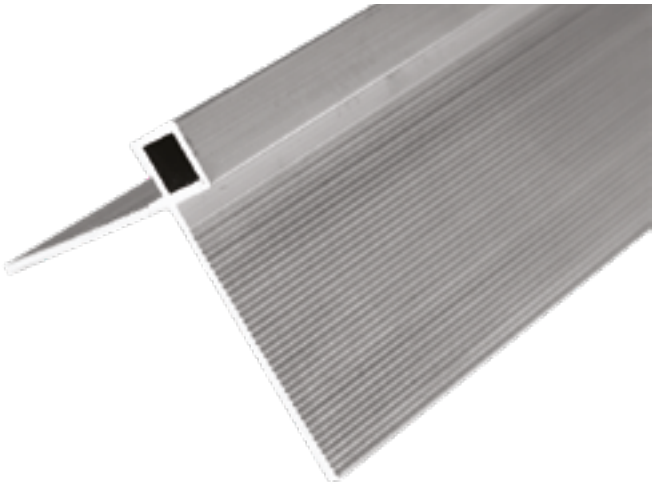
KWN profiles are special profiles, mostly used in the corners of the cladding. Thanks to KWN profiles we can achieve an aesthetically pleasing finish for corners, window splays or facade edges.

TECHNICAL DRAWING

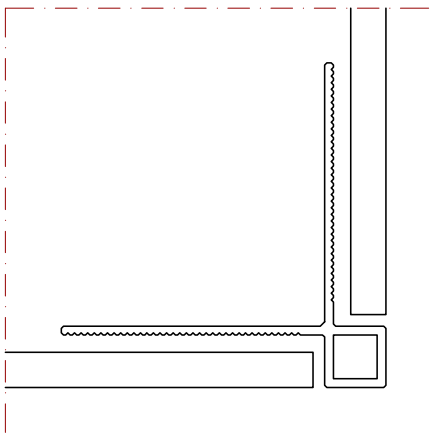
KWN1 PROFILE



VISUALIZATION

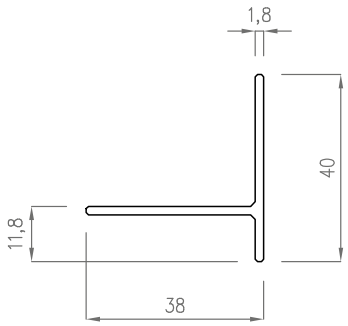


MOUNTING SCHEME

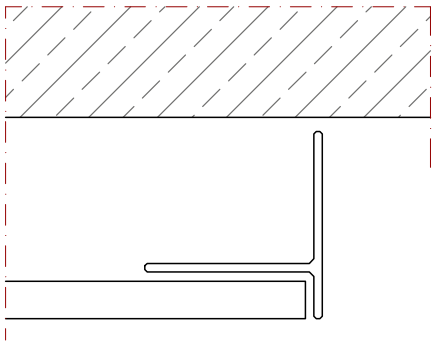


TECHNICAL DRAWING

KWN5 PROFILE



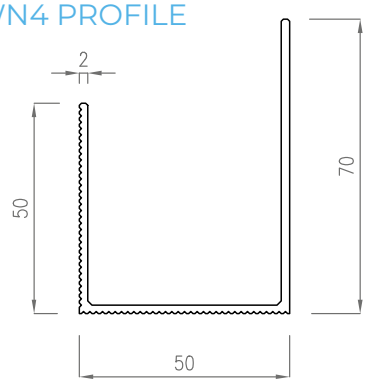
MOUNTING SCHEME



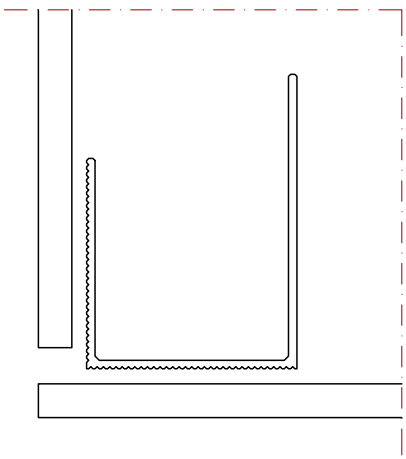
VISUALIZATION

TECHNICAL DRAWING

KWN4 PROFILE

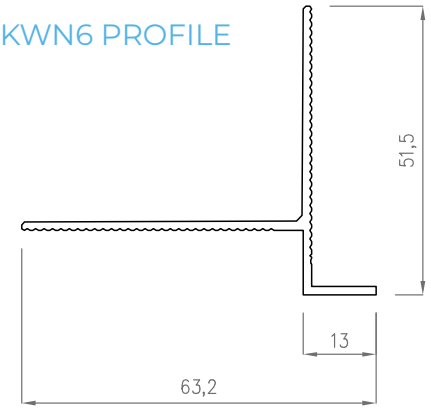


MOUNTING SCHEME

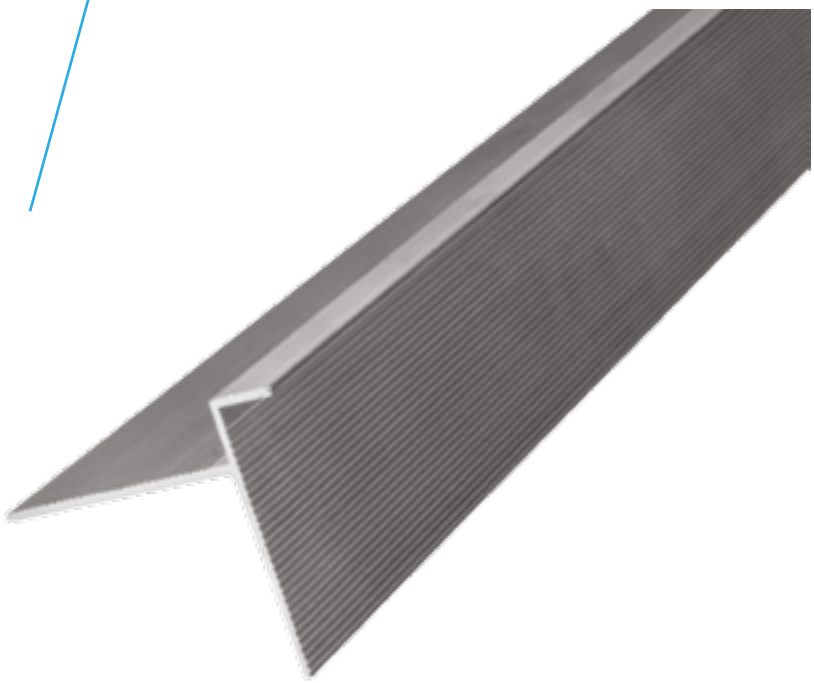


TECHNICAL DRAWING

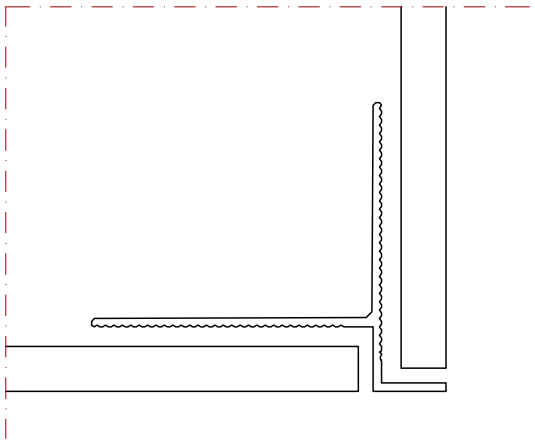
KWN6 PROFILE



VISUALIZATION

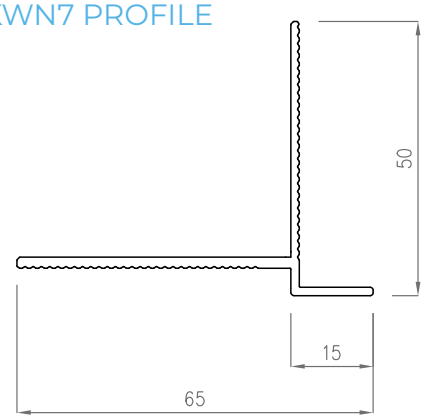


MOUNTING SCHEME

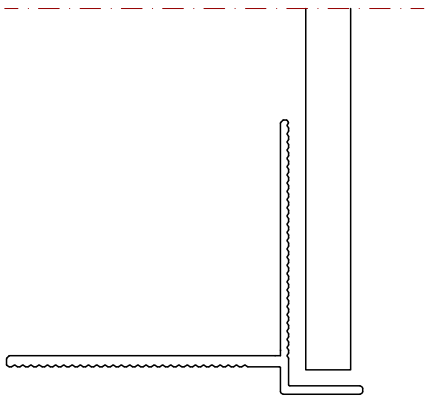


TECHNICAL DRAWING

KWN7 PROFILE



MOUNTING SCHEME

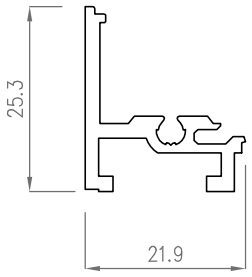


KRP profiles

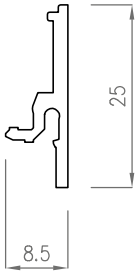
The KRP1 and KRP2 profiles together form a kit for fixing balcony partitions with two-sided HPL, glass or other material infill. This solution requires designing of an individual load-bearing frame which the KRP kit is attached to. The infill in the form of panels is fixed in the KRP profiles on a snap-fit basis, without visible fasteners which has a positive effect on aesthetics. A gasket is used between the KRP profiles and the supporting frame, which eliminates the effect of uneven thermal expansion of both elements.

TECHNICAL DRAWING

KRP1 PROFILE

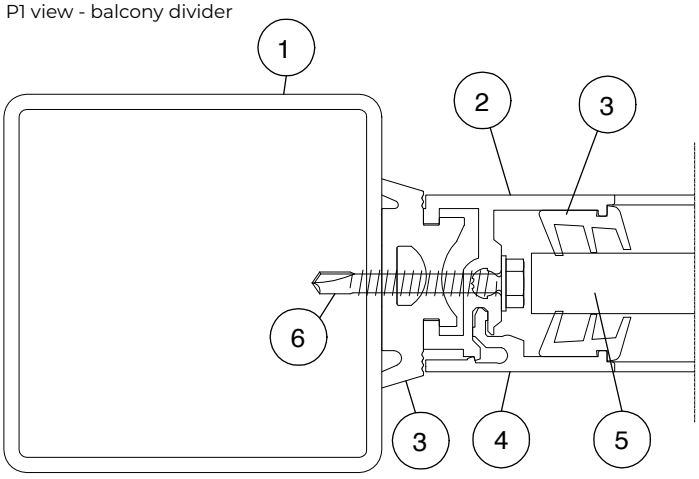


KRP2 PROFILE



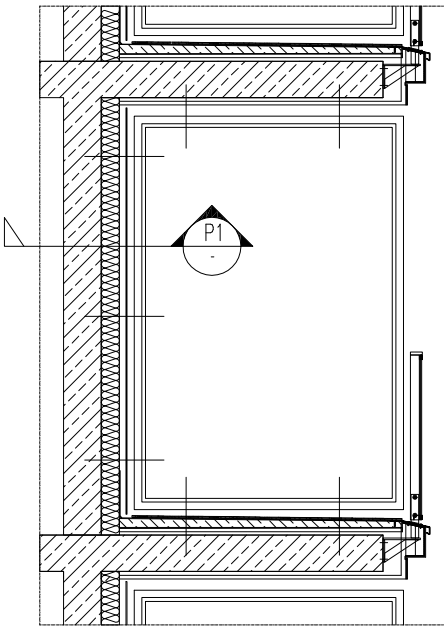
DETAIL

P1 view - balcony divider



1.Load-bearing steel profile
2. BSP profile KRP 1
3. EPDM gasket
4. BSP profile KRP 2
5. Partition infill
6. Fastening screw

Widok - przepierzenie balkonowe

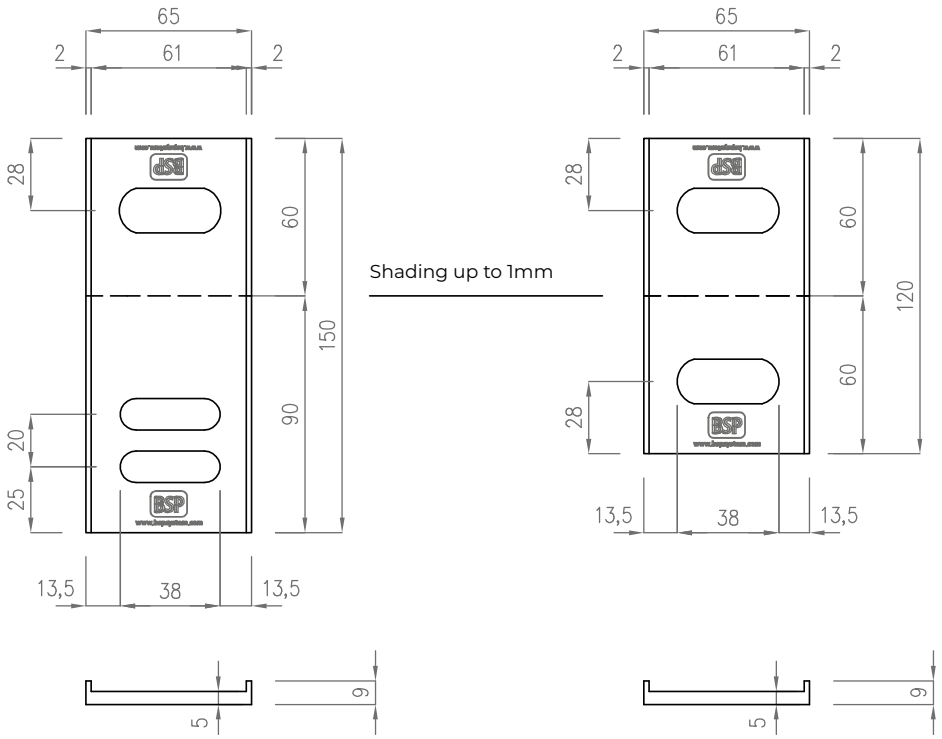


HDPE washers

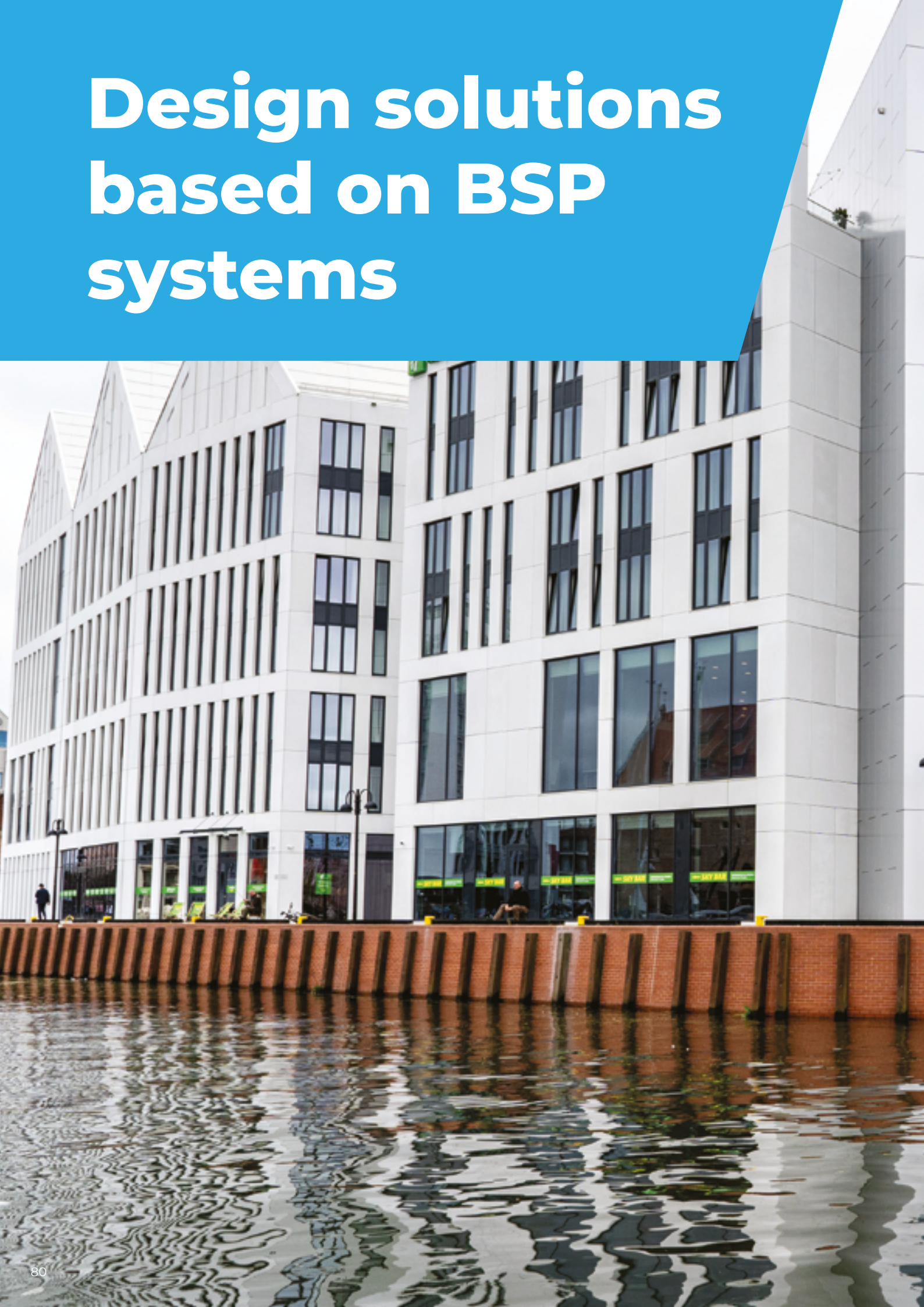
HDPE washers are made of high-density polyethylene manufactured during a process of low-pressure polymerization. This material is characterized by serious hardness, mechanical strength and chemical resistance.
The washers are used under the brackets as separators that separate the aluminum from the base to avoid potential corrosion. In addition, washers provide additional thermal insulation, as they are a material offering very high thermal resistance.

VISUALIZATION

TECHNICAL DRAWING



Design solutions based on BSP systems



Photovoltaic panels

Our company has recently successfully entered the construction sector related to renewable energy and, more specifically, the photovoltaic technology. Among investors and architects the term - BIPV or building-integrated photovoltaics (BIPV) is more and more recognized (Building Integrated Photovoltaics). This is the definition of photovoltaic projects, where the elements that produce energy from the sun are photovoltaic modules posing a substitute for standard glass elements in buildings. Thanks to modern and safe manufacturing technology of glass photovoltaic modules, standard elements of a building's body such as facades, skylights or roofs are replaced with active glass, i.e. integrated photo-voltaic cells enabling production of the solar energy. A key element in the BIPV field is the substructure that attaches the photo cells to the building structure.
BSP System's product range includes a number of substructure systems perfectly suited for installation of photovoltaic panels on the facade. These systems include:
- BSP KCS – p. 52
- BSP KWRO – p. 66
- BSP KWRY – p. 51

Our company's strategic partner in the photovoltaic sector is Solar Office Sp. z o.o. - a distributor of photovoltaic panels manufactured by Onyx Solar. The panels offered can be characterized by any color and translucency, which greatly expands the possibilities of using this product in the building architecture. Combining products, knowledge and experience of our companies, we are able to offer a comprehensive service for photovoltaic projects, from a concept to the design, installation and implementation.

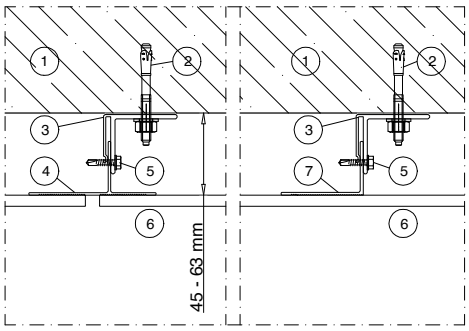
SolarOffice.pl onyx

Interior claddings

Fixing of cladding indoors is usually subject to fewer technical requirements. First of all, the forces acting on the substructure indoors are much lower compared to outdoor conditions due to the lack of direct wind action. In addition, thermal insulation is most frequently not required in interiors, so the overhang of the substructure is much smaller. It is the smallest possible overhang that designers care about for interior cladding in order to achieve the largest possible usable area. Below find a number of design solutions based on BSP System substructures for interior cladding.

DETAIL

BSP KW1 BRACKETS WITH KWR5 AND KWR8 PROFILES

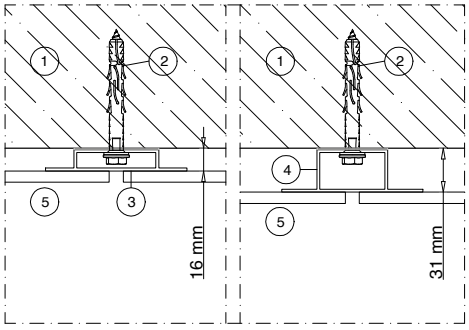


1. Structure of the building
2. Fixing anchor
3. BSP KW1 bracket
4. Profile BSP KWR8
5. Fastening screw
6. Cladding
7. BSP KWR5 profile

The most standard solution for fixing interior cladding is to use KW1 brackets as well as the KWR5 aluminum angles and KWR8 T-shaped, which are the shallowest profiles in the BSP range. The overhang of the brackets can be selected freely from the entire assortment (page 20), but brackets with a overhang of 42 mm are most often used in order to achieve the smallest possible total overhang of the cladding. This solution makes it possible to adjust the overhang of the sub-construction in the range 45 - 63 mm.

DETAIL

BSP RW PROFILES

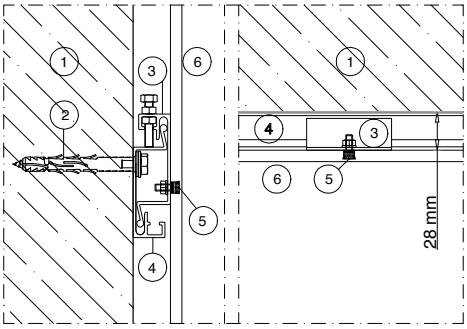


1. Building structure
2. Fixing anchor
3. BSP RW2B profile
4. BSP profile RW2E
5. Cladding

Omega type RW profiles enable obtaining the smallest possible overhang of the substructure which is 16 mm. The profiles are fixed directly to the substrate and the plane of the substructure is adjusted due to washers. Detailed drawings of RW profiles can be found on page 73.

DETAIL

BSP KWRW SYSTEM

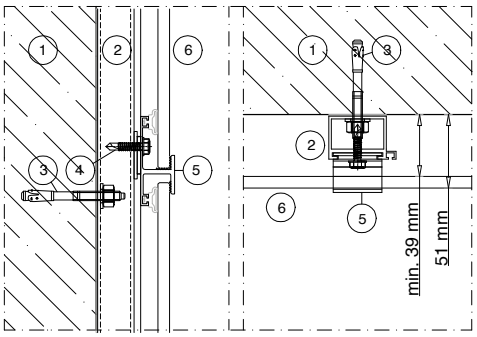


1. Building structure
2. Anchor
3. BSP KWRW catch
4. BSP KWRW profile
5. Rear-cutting anchor
6. Cladding

Another solution is the KWRW catch system (alternatively KWRZ), attached directly to the base. The overhang of the substructure in this case is 28 mm and the plane of the substructure is adjusted with washers. KWRW system is described in detail on page 44.

DETAIL

BSP KCO SYSTEM

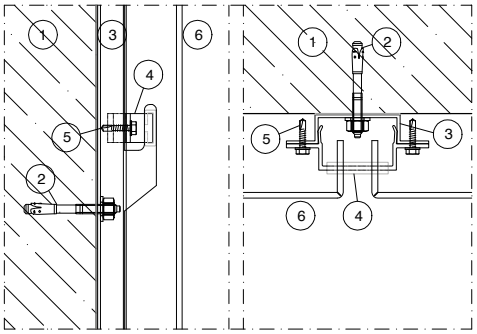


1. Building structure
2. BSP KCO profile
3. Fixing anchor
4. Fixing screw
5. BSP KC4 catch
6. Cladding

For catch-based fastening of glass or quartz sinter cladding indoors, the KCS system is used with KCO profiles fastened directly to the substrate. The overhang of the face of the cladding in this case equals 51 mm and the plane of the sub-construction is adjusted by means of washers. The KCS system in the KCO variant is described in detail on page 54.

DETAIL

BSP RWY SYSTEM



1. Building structure
2. Fixing anchor
3. BSP RWY profile
4. BSP KWZ catch
5. Fixing screw
6. Cladding

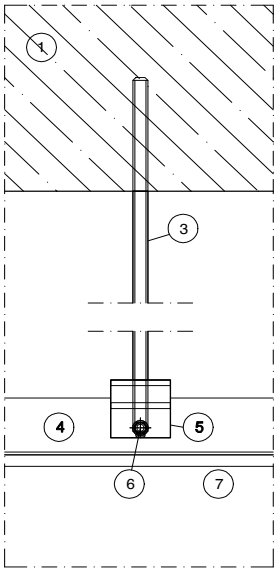
For fixing composite, aluminum or steel cassette panels indoors, the KWRY system is used with RWY profiles fixed directly to the substrate. The plane of the substructure is adjusted using washers. The KWRY system in the RWY variant is described in detail on page 50.

Suspended ceilings

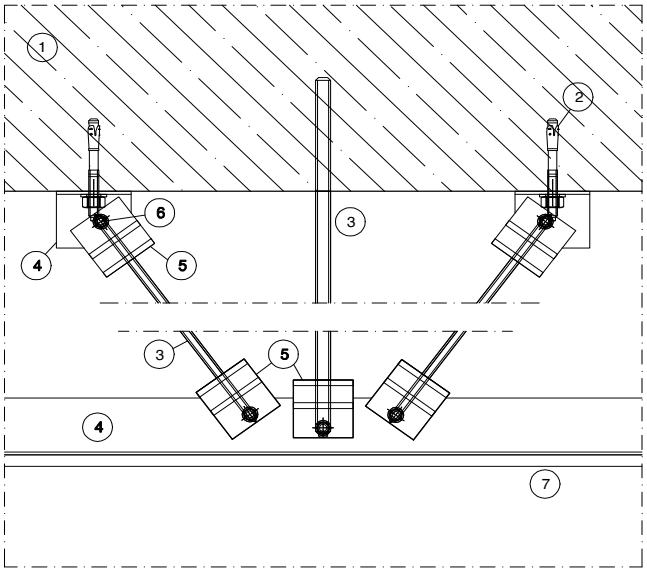
To fix suspended ceilings it is recommended to use the BSP KWE rod substructure system (optionally KWRO or KWRCY). This solution makes it possible to achieve virtually any suspension distance due to the same elements. In addition, due to bars it is easy to avoid collisions with various types of installations often located above the suspended ceiling. For very large suspensions it may be necessary to use additional diagonal stays to brace the entire structure against lateral forces. The KWE system is described in detail on page 62.

DETAIL

Vertical cross-section

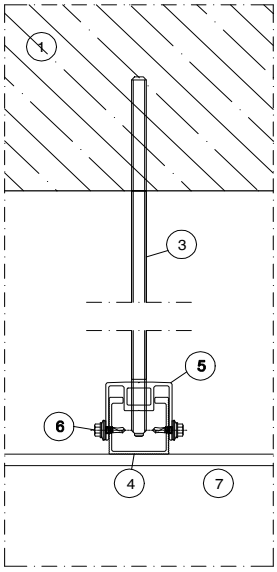


Vertical cross-section - stabilization node

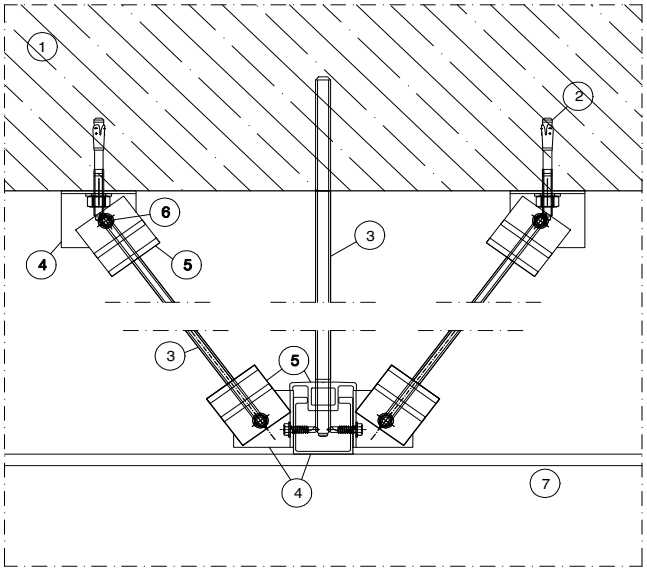


1. Building structure
2. Fixing anchor
3. Threaded rod
4. BSP KWRC profile
5. BSP KWE bracket
6. Fixing screw
7. Cladding

Vertical cross-section



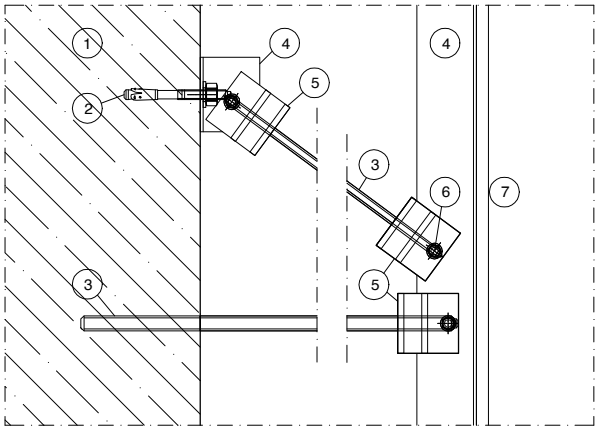
Vertical cross-section - stabilization node



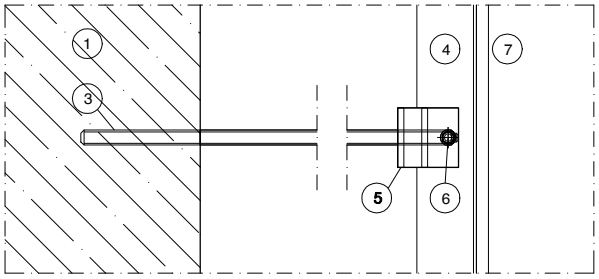
Large overhang

DETAIL

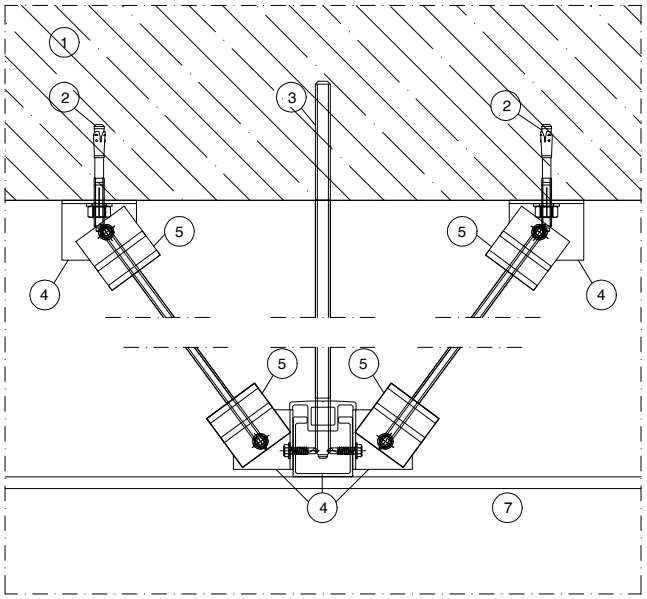
Vertical detail- load-bearing node



Vertical detail - wind node



Horizontal detail - stiffening braces for lateral forces



1. Building structure
2. Fixing anchor
3. Threaded rod
4. BSP KWRC profile
5. BSP KWE bracket
6. Fixing screws
7. Cladding

For large, non-standard lengths of the facade cladding from (side of) the building structure, the BSP KWE rod substructure system (optionally KWRO or KWRCY) is used. The design solution in this case is very similar to suspended ceilings. The load-bearing fastening includes a vertical brace. It effectively limits the deflection of the substructure caused by the weight of the cladding. In case of large lateral forces and impossibility of stiffening the system in the horizontal direction (for example, in the corners of the building), additional horizontal braces are used. Rod diameters are selected on the basis of static calculations depending on the loads.

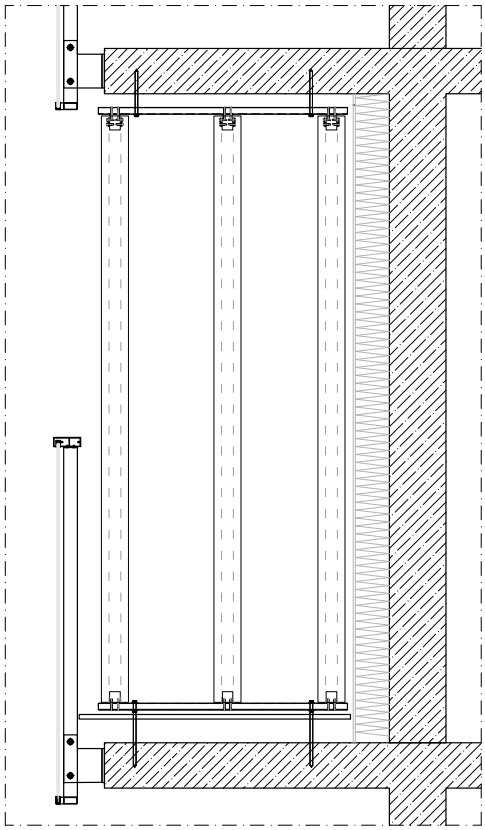
Due to this solution and the BSP bar substructure system we can achieve an overhang of up to 1m without need for an additional steel structure.

Balcony partitions

Nowadays, in residential buildings, it is very common to erect continuous balconies separated by balcony partitions between individual units. There are a number of solutions with BSP products. Below there are three most common solutions used in projects.

DETAIL

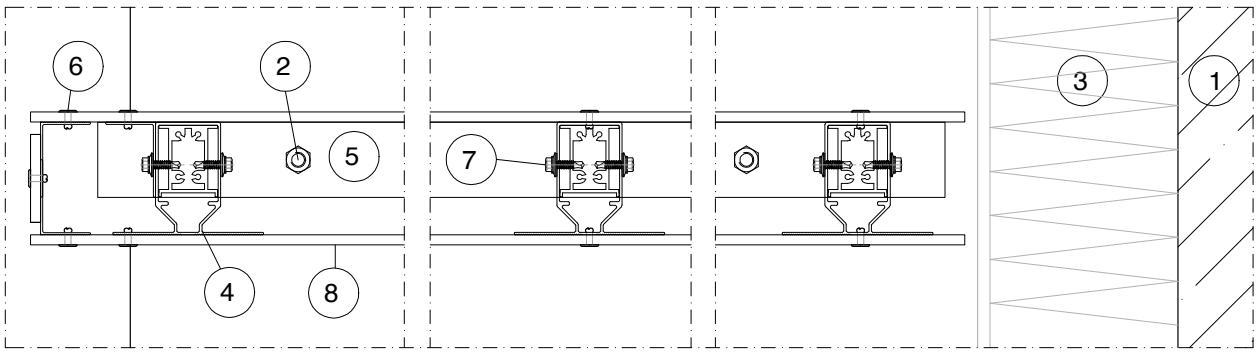
View of the structure



Top-to-bottom fixed partition, with KWR6 aluminum profiles

If we have the ability to fasten (elements) to the upper and lower balcony slab, we can use the KWR6 profiles (detailed description of the profiles on page 59) as a partition structure. These profiles are attached to horizontal rectangular aluminum profiles, which in turn are fastened to the balcony slab by means of threaded rods, chemically anchored. The bars piercing the floor layers are relatively easy to cover with insulation. Advantage of this solution is use of aluminum structural elements alone, which are easy to work with and transport. The structure has cladding on both sides which makes it is virtually invisible.

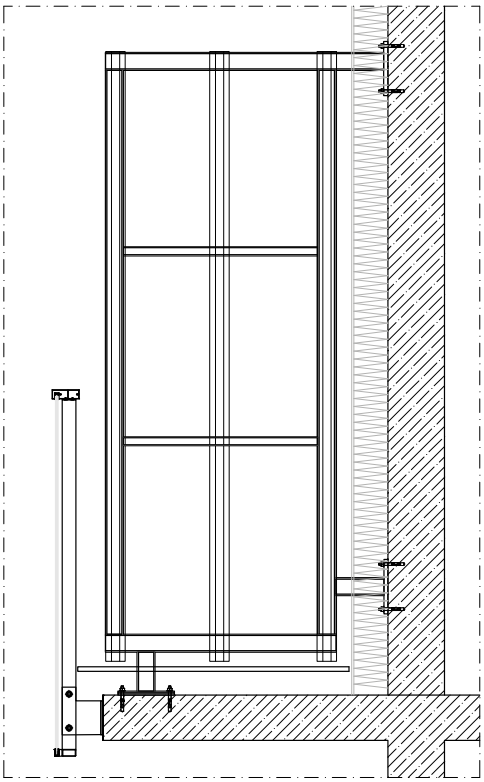
Horizontal profile



1. Building structure
2. Threaded rod
3. Thermal insulation
4. BSP profile KWR 6
5. Rectangular aluminum profile
6. Rivet
7. Fastening screw
8. Cladding

DETAIL

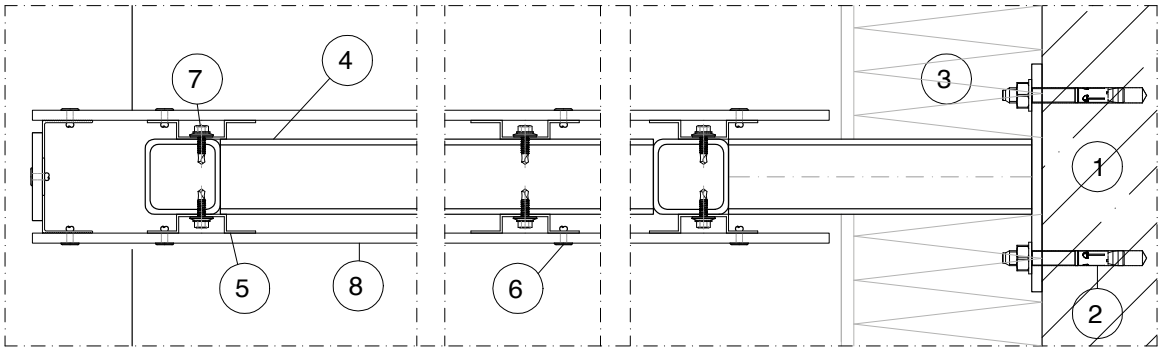
View of the structure



Partition structure fixed side-to-side (or side-to-top), by means of steel frame and Omega type RW profiles

If it is not possible to fix elements to the upper balcony slab (for example, on the top floor) or we have the ability to fix (elements) to the upper balcony slab but there is no permission to attach to the lower balcony slab and pierce the insulation layers, we use the side wall. In this case, however, due to the less favorable static arrangement, we use a more rigid structure in the form of a custom-designed steel frame. We fasten vertical Omega-type RW profiles to the frame (see page 73 for a detailed description of the profiles), adjusting with washers and getting an even plane. As in the first case, the structure is clad on both sides, making it virtually invisible.

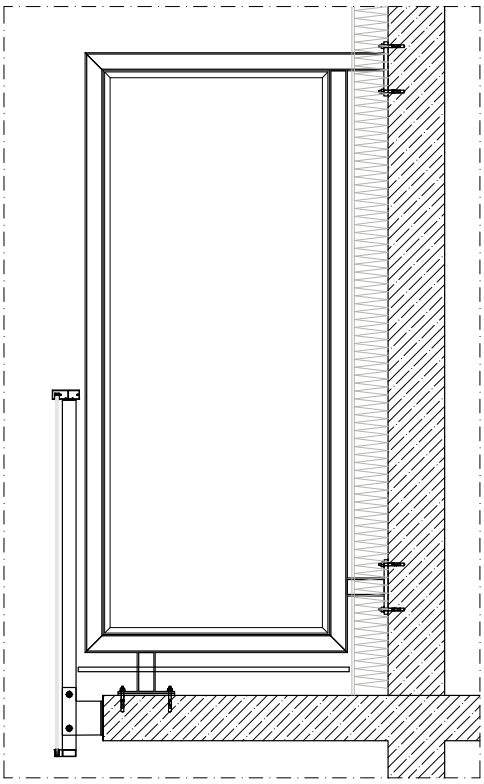
Horizontal profile



1. Building structure
2. Fixing anchor
3. Thermal insulation
4. Supporting steel frame
5. Omega type BSP profile
6. Rivet
7. Fastening screw
8. Cladding

DETAIL

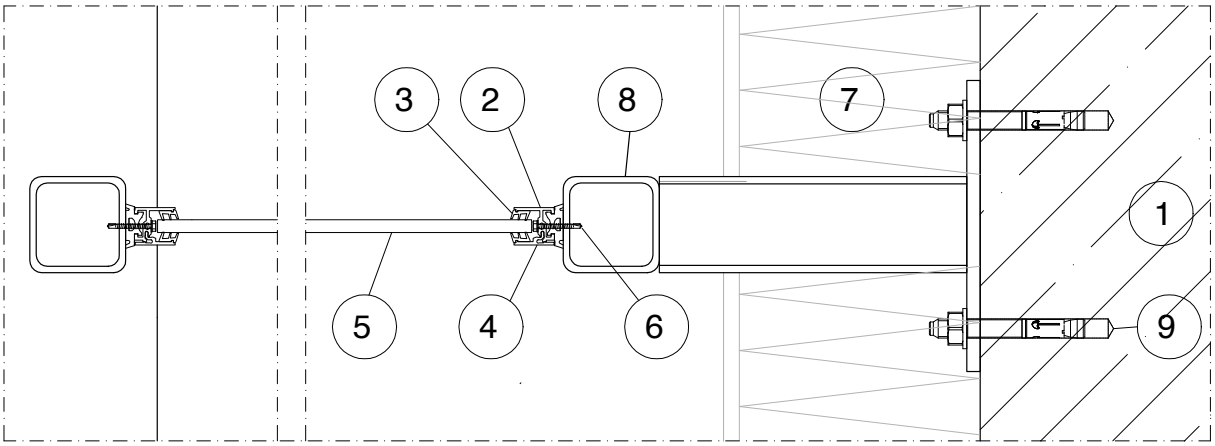
View of the structure



Partition with double-sided panel infill with KRP profiles

Regardless of the ability to mount top-side-bottom, we can design the partition as a thin structure with a single-layer slab infill. For this purpose we use an individually designed load-bearing frame which we fix KRP profiles to (detailed description of profiles on page 78). The infill, which can be HPL board, glass or other material is fixed to the KRP profiles on a snap-in basis. In this case, the panel infill the partition must be double-sided and the partition structure is visible, so it is recommended to varnish it in the color of your choice. The advantage of such a partition solution is its small thickness and relatively low cost.

Horizontal profile



1. Building structure
2. BSP profile KRP 1
3. EPDM seal
4. BSP KRP profile 2
5. Partition infill
6. Fixing screw
7. Thermal insulation
8. Load bearing steel frame
9. Fixing anchor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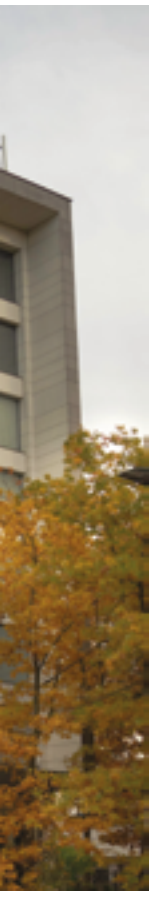

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