KERAION®
CERAMICS IN LARGE FORMAT

Muhammad Ali Center, Louisville, USA / Architects: Lee H. Skolnick Architecture + Design Partnership/Beyer, Blinder Belle Arcitects & Planners LLP / Year: 2005 / Products: KerAion® Quadro / Photos: Daniele Domenicali

Designing with colors

Used world-wide for decades, the KerAion® facade system also offers - besides low weight and special fastening technique - alternatives to the otherwise quite usual board formats. In addition to rectangular panels, square panels in the large formats of 60 x 60 cm, 90 x 90 cm and 120 x 120 cm are also available, which are particularly suitable for the facade design of big buildings.

All versions and formats received the general approval of the construction supervisory authority and also prove themselves in case of a statically demanding building structure. A high degree of creative freedom is ensured by the color range. It is based on SpectraView, the range of nine color families matched to each other and several contrasting colors, which was developed by the color designer Peter Zoernack. It is completed by the “Design glazed” colors.

The KerAion® panels can be installed both with visible and invisible fastening. KerAion® Quadro with a weight per unit area of 18.5 kg/m² and a thickness of 8 mm is mounted either by means of clasps (in case of the standard dimensions of 60 x 60 cm and 60 x 90 cm) or bearing profile (formats 60 x 120 cm, 90 x 90 cm, 90 x 120 cm and 120 x 120 cm). KerAion® K8 (standard dimensions of 60 x 60 cm, 60 x 90 cm), also 8 mm thin and with a weight of 18 kg/m², is designed for the fastening by means of clamps. Optionally, safety tapes are available for all formats, which are applied to the panel reverse side already in-plant and prevent larger pieces from falling down if a panel is damaged.

Architects attaching importance to a particularly uniform joint pattern decide in favour of KerAion® Quadro with invisible fastening by means of clasps or bearing profiles (depending on the panel size). In addition, the system offers the advantage that a weakening of the facade panels by undercut anchors is avoided. KerAion® K8 with visible clamp fastening – with the color of the clamp lips being matched to the design of the ceramic panel – offers other advantages: above all the rapid installation with well thought-out system components, both on metal and wooden substructure.

Ceramic mega-puzzle

For more than a decade, the Muhammad Ali Center in Louisville (USA) has been regarded as a typical example of a new relationship between form and function in architecture. A key role in this design is played by ceramic tiles by AGROB BUCHTAL.

When architects in North America began to revise the dogmatic relationship between the form and function of a building, they saw many familiar materials in a new light or reinvented them entirely. Within this context, ceramic tiles – always valued on account of their durability and feasibility – were attributed new value as a versatile artistic medium. There are various reasons for the fact that they have asserted themselves in numerous renovations and new building projects. Apart from their robustness, sustainability and maintenance-friendliness, it was the extensive range of colors, shapes and textures in particular which fascinated the planners with artistic ambitions.

In Louisville (Kentucky), the birthplace of the boxing champion and human rights activist Muhammad Ali, KerAion ceramic panels were the material of choice: the graphic designs on the facade of the Muhammad Ali Center can be seen from afar and comprise almost 10,000 tiles in 30.5 x 61 cm format. While the Center spanning almost 9,000 square metres includes a museum, tolerance centre, Hall of Fame, archive and learning centre based on designs by Beyer Blinder Bell Architects & Planners LLP and Lee H. Skolnick Architecture + Design Partnership, the New York artist Glenn Cummings from the agency 2x4 was responsible for designing the facade. In doing so, he turned to photographs by Howard L. Bingham depicting the boxer in typical poses at the pinnacle of his career.

Built in a prominent location on the banks of the river, this building is an eye-catcher. From a distance, the figurative representations are easily recognised as such but as viewers draw closer, these pixeled images are stunningly transformed into abstract patterns.

Muhammad Ali Center, Louisville, USA
Architects: Lee H. Skolnick Architecture + Design Partnership, Beyer Blinder Belle Arcitects & Planners LLP /
Year: 2005 / Products: KerAion® Quadro /
Photos: Daniele Domenicali

Pixel picture in XXL

Already the facade points to the purpose of the building: the Data-Center of the Shinhan Financial Group at Seoul shows an oversize pixel picture of a color gradient from dark-blue to white.

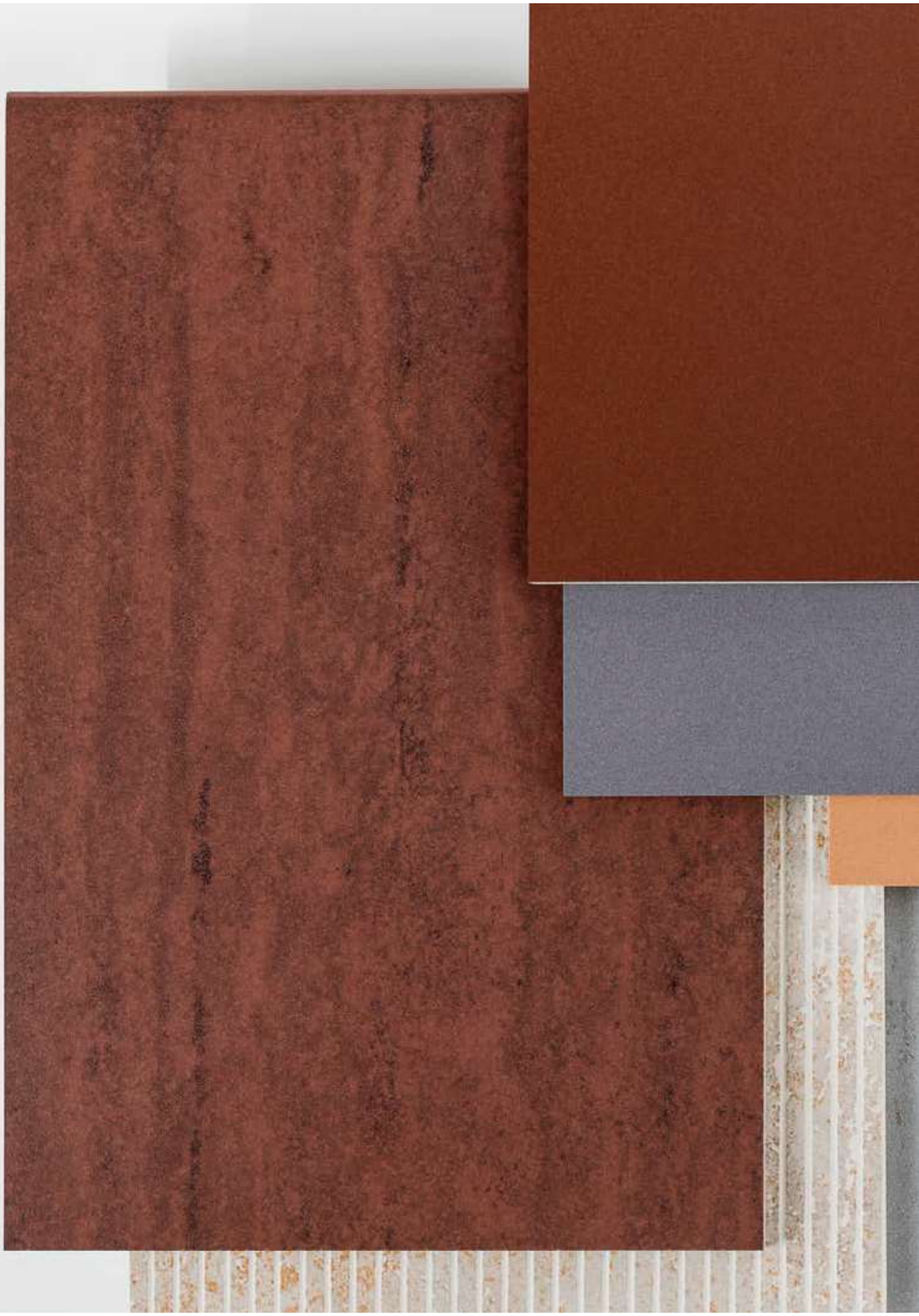
Shinhan Data Centre, Seoul, South Korea / Architect: Samoo Architects & Engineers, Seoul /
Year: 2013 / Products: KerAion® Quadro, KeraTwin® K20


SHINSEGAE FINANCIAL GROUP

Beautiful architecture for daily use

Besides a large Migros branch, the multi-purpose building ensemble also houses restaurants, offices and flats of various sizes. The KerAion® elements in different formats lend the buildings a timeless look, which becomes visible above all at close range in interesting details.

Baarcity, Baar, Switzerland / Architect: Theo Hotz AG, Architekten + Planer /
Year: 2012 / Products: KerAion® Quadro / Photos: Adriano Faragulo



Surface finishes and formats for KerAion®

Thanks to its great variety of colors, formats and finishes, the KerAion® system offers plenty of scope for individual concepts. The modular formats rely on large-sized squares and rectangles, from 60 x 60 cm to 120 x 120 cm.

The silky-matt glazed “SpectraView” color range with its nine harmoniously co-ordinated color families and five shimmering glazed contrast colors is complemented by aesthetic design surface finishes. The glazed tiles are available with **Hytect** surfaces in stone, cement, metal and wood designs.

Surfaces for KerAion®

Elegant look

With their smooth, silky-matt surface, KerAion® panels lend every facade an elegant look. Individual design concepts are supported by the wide color range.

KerAion® Quadro / KerAion® K8

KerAion® Quadro with safety tape

KerAion® K8 with safety tape

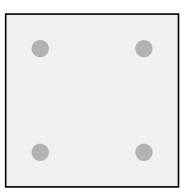
Safety tapes

With the safety tapes, AGROB BUCHTAL optionally offers a safety system specially matched to the KerAion® facade panels. The safety tapes applied to the panel reverse side in-plant prevent larger pieces from falling down if panels are damaged mechanically.

Formats for KerAion® Quadro

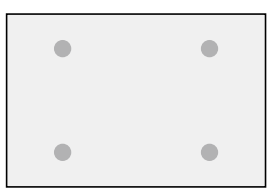
Extruded Ceramic Panels, Precision, DIN EN 14411, group AIb,
glazed (GL), (large-size stoneware panels), 8 mm thick, 18.5 kg/m²

Standard sizes (grid size / work size)	invisible fastening with clasps: 60 x 60 cm / 592 x 592 mm, 60 x 90 cm / 592 x 892 mm invisible fastening with bearing profile: 60 x 120 cm / 592 x 1192 mm, 90 x 90 cm / 892 x 892 mm / 90 x 120 cm / 892 x 1192 mm, 120 x 120 cm / 1192 x 1192 mm Other sizes available on request.

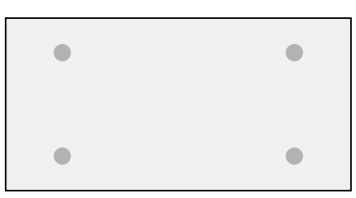


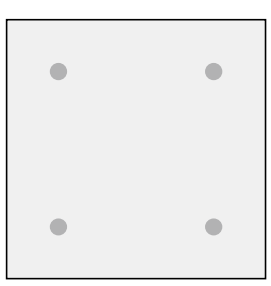
Fastening with clasps

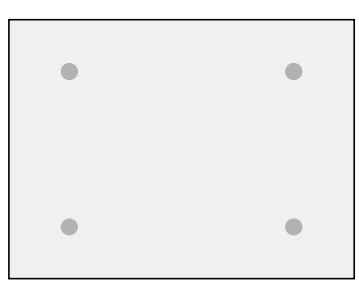
Article Q100HK
60 x 60 cm

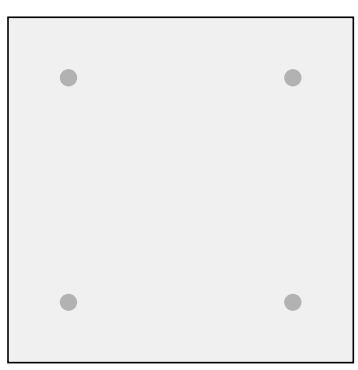


Article Q104HK
60 x 90 cm









Fastening with bearing profile

Article Q418HK
60 x 120 cm

Article Q416HK
90 x 90 cm

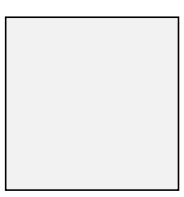
Article Q414HK
90 x 120 cm

Article Q422HK
120 x 120 cm

Formats for KerAion® K8

Extruded Ceramic Panels, Precision, DIN EN 14411, group AIb,
glazed (GL), (large-size stoneware panels), 8 mm thick, 18 kg/m²

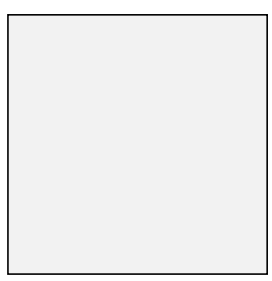
Standard sizes: (grid size / work size)	60 x 60 cm / 592 x 592 mm, 60 x 90 cm / 592 x 892 mm, 90 x 90 cm / 892 x 892 mm, 60 x 120 cm / 592 x 1192 mm Other sizes available on request.



Clamp fastening

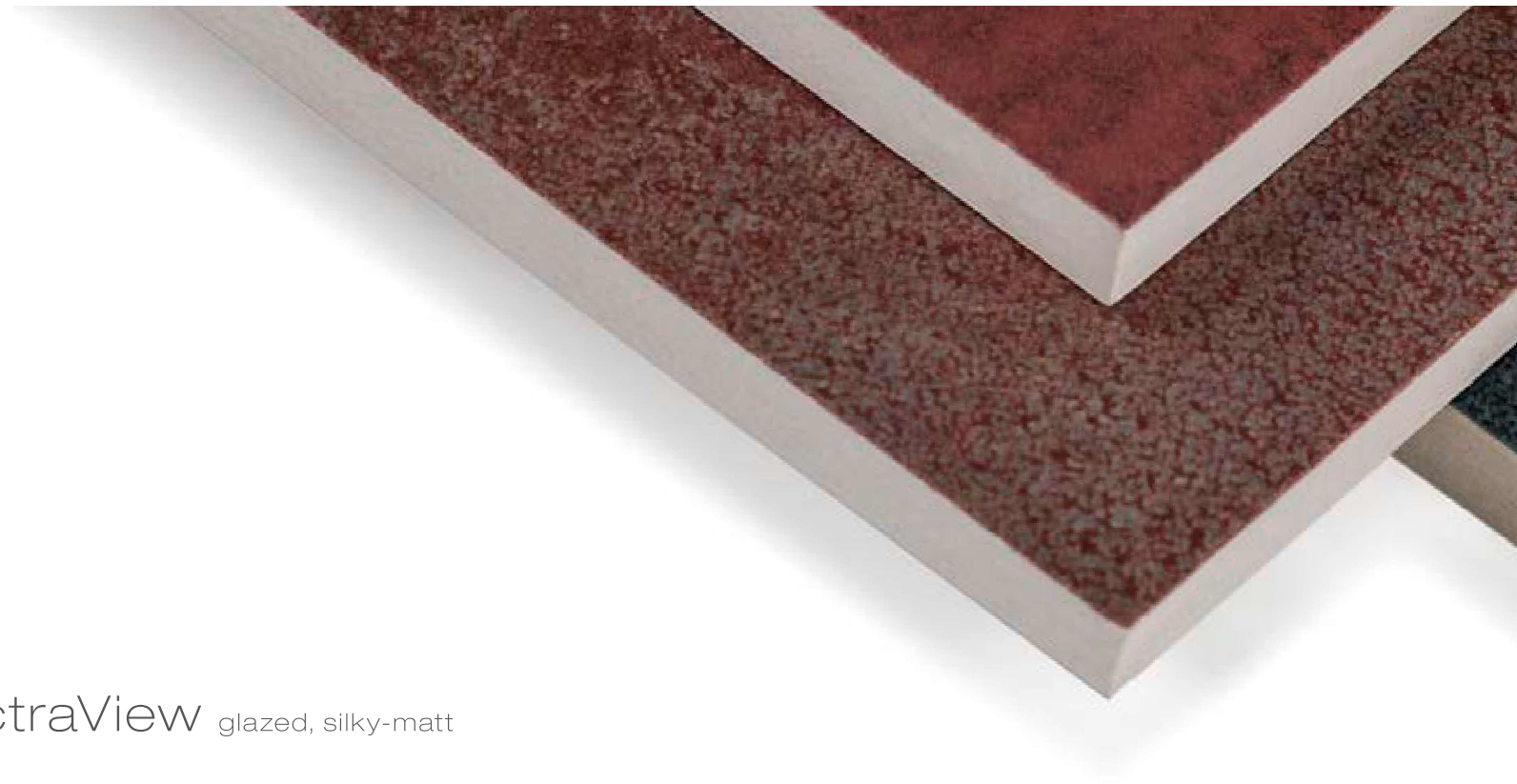
Article K100HK
60 x 60 cm

Article K104HK
60 x 90 cm



Article K416HK
90 x 90 cm

Article K418HK
60 x 120 cm



SpectraView glazed, silky-matt

6201 cream 1 H | 6202 cream 2 H | 6203 cream 3 H | 6204 cream 4 H | 6205 cream 5 H

6211 yellow 1 H | 6212 yellow 2 H | 6213 yellow 3 H | 6214 yellow 4 H | 6215 yellow 5 H

6221 apricot 1 H | 6222 apricot 2 H | 6223 apricot 3 H | 6224 apricot 4 H | 6225 apricot 5 H

6231 salmon-red 1 H | 6232 salmon-red 2 H | 6233 salmon-red 3 H | 6234 salmon-red 4 H | 6235 salmon-red 5 H

6241 rosé 1 H | 6242 rosé 2 H | 6243 rosé 3 H | 6244 rosé 4 H | 6245 rosé 5 H

6251 neutral-grey 1 H | 6252 neutral-grey 2 H | 6253 neutral-grey 3 H | 6254 neutral-grey 4 H | 6255 neutral-grey 5 H

6261 grey 1 H | 6262 grey 2 H | 6263 grey 3 H | 6264 grey 4 H | 6265 grey 5 H

6271 blue 1 H | 6272 blue 2 H | 6273 blue 3 H | 6274 blue 4 H | 6275 blue 5 H

6281 green 1 H | 6282 green 2 H | 6283 green 3 H | 6284 green 4 H | 6285 green 5 H

4230 glacier-white, glossy H | 4234 chalk-white, matt H | 4530 black, glossy H | 4534 black, matt H

Contrasting colors glazed, glossy

150 lemon-yellow H | 151 orange H | 152 apple-green H | 153 violet H | 154 contrasting red H

144 intense blue H

Design glazed

Stone

1100 Stonewall 1 H


1115 Rockface 1 H


1090 Haze 1 H


1110 Mega 1 H


1101 Stonewall 2 H


1116 Rockface 2 H


1091 Haze 2 H


1111 Mega 2 H


1102 Stonewall 3 H


1117 Rockface 3 H


1093 Haze 3 H


1112 Mega 3 H


1103 Stonewall 4 H


1092 Haze 4 H

Cement


1140 Construct 1 H


1141 Construct 2 H

Metal


1180 Metal 1 H


1181 Metal 2 H


1182 Metal 3 H

Wood


1170 Bosco 1 H


1171 Bosco 2 H


1172 Bosco 3 H

H = **Hytect** surface

In addition to the variants shown, the production of individual articles is also possible. After a short check of the individual case for technical and economical feasibility, we will be pleased to provide you with project-specific information.

The colors “Design glazed” can be supplied for the system KerAion® up to a panel width of 60 cm.

KerAion® Quadro with invisible fastening (clasps / bearing profile)

1 Facade panel KerAion® Quadro

2 Quadro fastening point

3 Clasp with adjusting screw

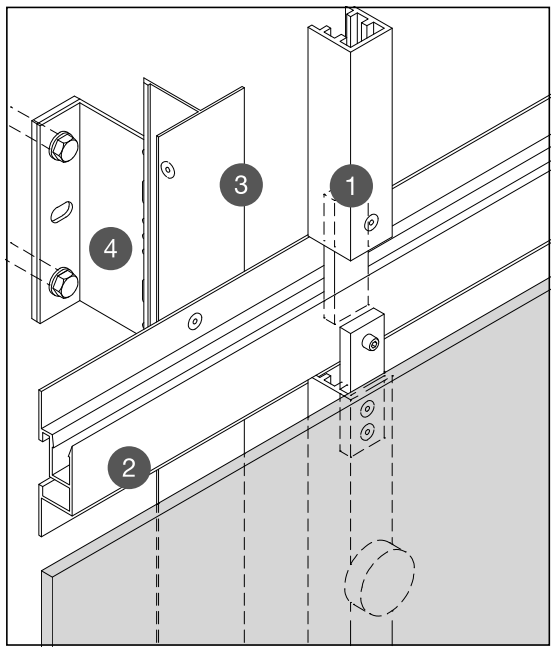
4 Horizontal bearing profile for clasp fastening (basic substructure)

5 Vertical bearing profile (basic substructure)

6 Wall bracket (basic substructure)

System description

Quadro fastening points (ceramic composite element) with integral stainless steel screw are sinter-fused on the reverse side of the KerAion® Quadro facade panels in a special firing process. On these fastening points, clasps (up to the size of 60 x 90 cm) or a bearing profile (up to the size of 120 x 120 cm) can be screwed by means of which the facade panels are hung in the substructure.



KerAion® Quadro fastening with bearing profile

1 Bearing profile (basic substructure)

2 Horizontal bearing profile for fastening with bearing profile (basic substructure)

3 Vertical bearing profile (basic substructure)

4 Wall bracket (basic substructure)

Mounting instructions for KerAion® Quadro – with invisible fastening (clasps / bearing profile)

Mounting instructions as video film:
www.agrob-buchtal.de

Substructure

The mounting of the substructure must be carried out according to project-specific, static calculation. The general approvals Z-10.3-725 (clasps) and Z-10.3-724 (bearing profile) of the construction supervisory authority serve as basis.

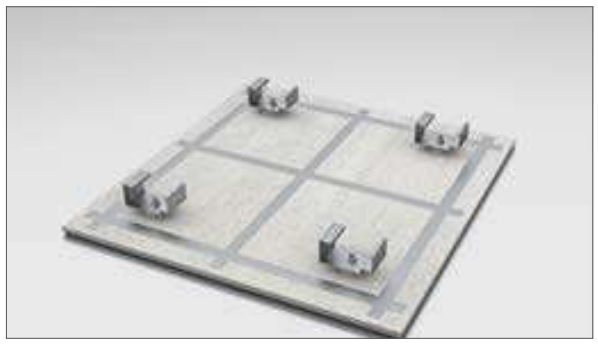
Quadro clasp

- The vertical profiles have to be mounted perpendicularly and in a flush way.
- The distance of the horizontal “clasp profiles“ depends on the Quadro fastening points on the reverse side of the panels.
- Use neoprene rubber washer (Art. no. 371) between clasps and Quadro.
- Fasten clasps with self-locking stainless steel nuts (Art. no. 370) with 2.5 Nm.

Quadro bearing profile

- The bearing profiles must have fixed and sliding points, see approval Z-33.1-27.
- Fastening: Fasten Quadro – neoprene rubber washers (Art. no. 371) – bearing profile – with self-locking stainless steel nut (Art. no. 370) with 2.5 Nm.

Basic substructure



Screw clasps with rubber washer (Art. no. 371) and stainless steel nut (Art. no. 370) on the Quadro fastening points on the reverse side of the panels

Hang the KerAion® panels with the clasps on the reverse side in the horizontal rails

Align panel with screw and fix one clasp with clip

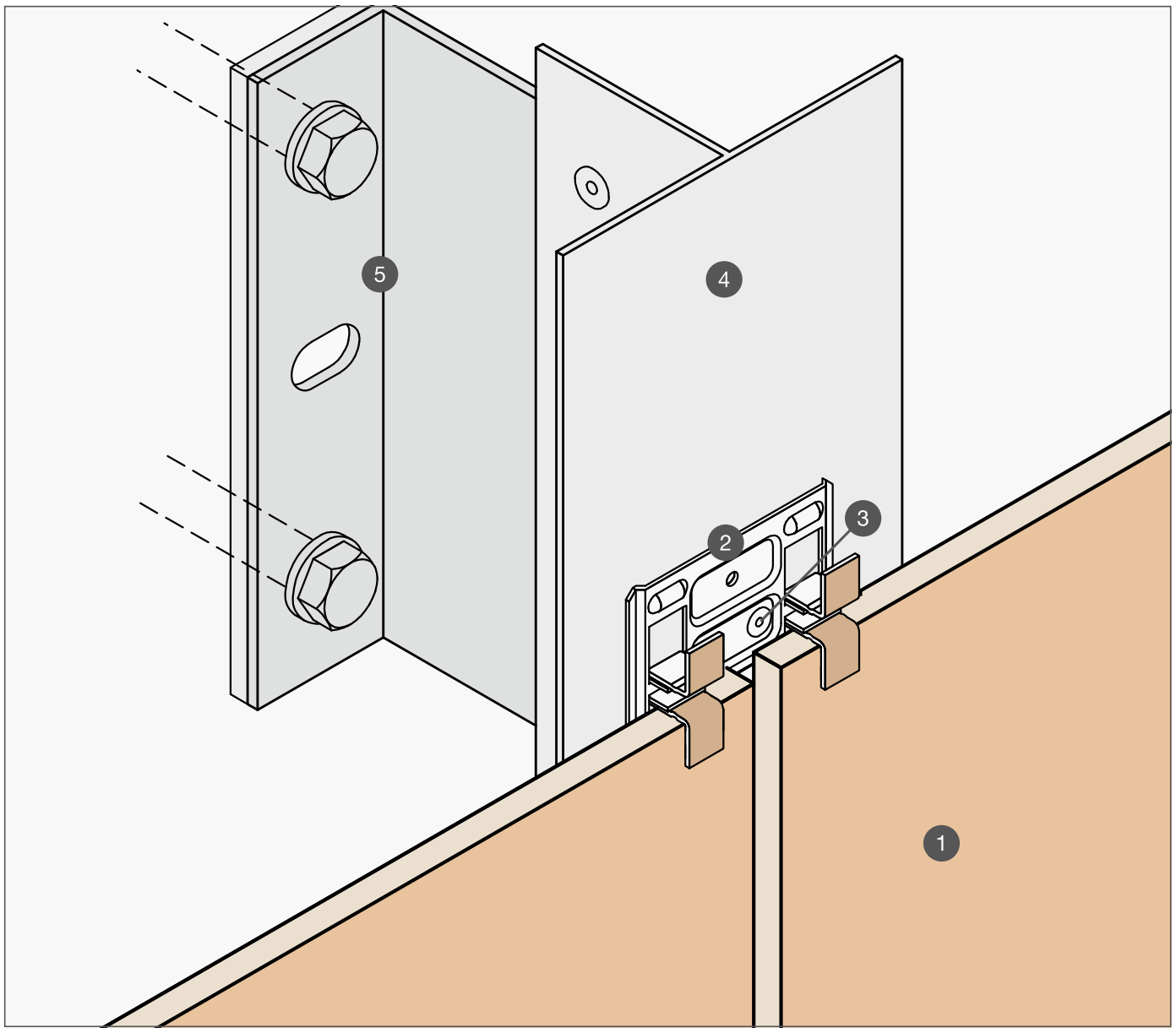
Accessories: KerAion® Quadro – with invisible fastening (clasps / bearing profile)

Article 370
Stainless steel nut,
self-locking,
Weight: 2 kg / 1,000 pieces
Nom. dimen.: M6

Article 371
Rubber washer, neoprene
Weight: 1 kg / 1,000 pieces
Nom. dimen.: 30 x 1.5 mm

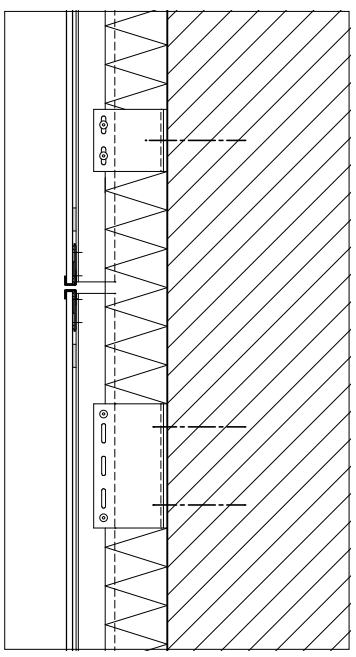
Important: The use of silicone caoutchoucs must be absolutely avoided, because silicone fluids segregate and effect sticky surfaces on which dirt adheres. Therefore, only use the system components mentioned (foamed pieces, EDPM rubber profile, neoprene rubber washer) and pointing, bonding and sealing materials recommended by us. We will be pleased to inform you in detail. The usual final cleaning after completion of the construction works is still required.

KerAion® K8 with visible clamp fastening



System description

The KerAion® facade panels are fixed on the substructure by means of the stainless steel clamps K8. The color of the clamp lips is matched to the panel design. To prevent clattering and constraining forces in the case of alternating wind loads, the facade panels are installed on the substructure in a nonrigid way by means of foamed pieces or alternatively with polyurethane.



1. Facade panel KerAion® K8
2. Twin-clamp K8, article 545
3. Stainless steel blind rivet, article 675
4. Vertical bearing profile (basic substructure)
5. Wall bracket (basic substructure)

!

A profile butt joint of the vertical bearing profiles behind a panel is not allowed! See standard technical detail drawings.

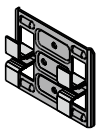
Mounting instructions for KerAion® K8 with visible clamp fastening

Substructure

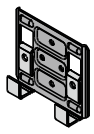
The mounting of the substructure must be carried out according to project-specific, static calculation. The general approval Z-10.3-776 of the construction supervisory authority serves as basis.

- The profiles have to be mounted perpendicularly and in a flush way.
- The length of the profiles must be divisible by the height of the panel format and should not exceed the height of a storey of the building (approx. 3 m).
- A profile butt joint of the vertical profiles behind a panel is not allowed.
- The stainless steel clamps K8 (Art. no. 545, 546, 547, 548, 549) must be fastened with stainless steel rivets (Art. no. 675).
- For the nonrigid installation of the panels, foamed pieces (Art. no. 347-01) or, alternatively, polyurethane have to be used.

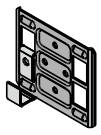
Accessories for KerAion® K8 with visible clamp fastening



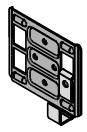
Article 545
Twin-clamp K8
Weight: 20 kg / 1,000 pieces
Perforation: 4 x 3.3 mm Ø
Base plate: painted black
Lips: painted similar to panel color
Material: 1.4571



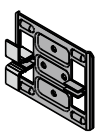
Article 546
Edge-clamp K8
Weight: 20 kg / 1,000 pieces
Perforation: 4 x 3.3 mm Ø
Base plate: painted black
Lips: painted similar to panel color
Material: 1.4571



Article 547
Edge-clamp K8, left
Weight: 20 kg / 1,000 pieces
Perforation: 4 x 3.3 mm Ø
Base plate: painted black
Lips: painted similar to panel color
Material: 1.4571



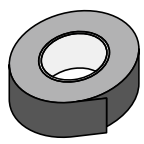
Article 548
Edge-clamp K8, right
Weight: 20 kg / 1,000 pieces
Perforation: 4 x 3.3 mm Ø
Base plate: painted black
Lips: painted similar to panel color
Material: 1.4571



Article 549
Single-clamp K8
Weight: 20 kg / 1,000 pieces
Perforation: 4 x 3.3 mm Ø
Base plate: painted black
Lips: painted similar to panel color
Material: 1.4571

Article 675
Stainless steel blind rivet, black
Weight: 1.05 kg / box
Nominal dimensions: 3.2 x 9.5 mm
Box contents: 500 pieces
extended mandrel (58 mm)

Article 347-01
Foamed piece*
Weight: 1.80 kg / roll
Nominal dimensions:
20 x 30 x 8 mm
Roll: 1,380 pieces / roll
self-adhesive



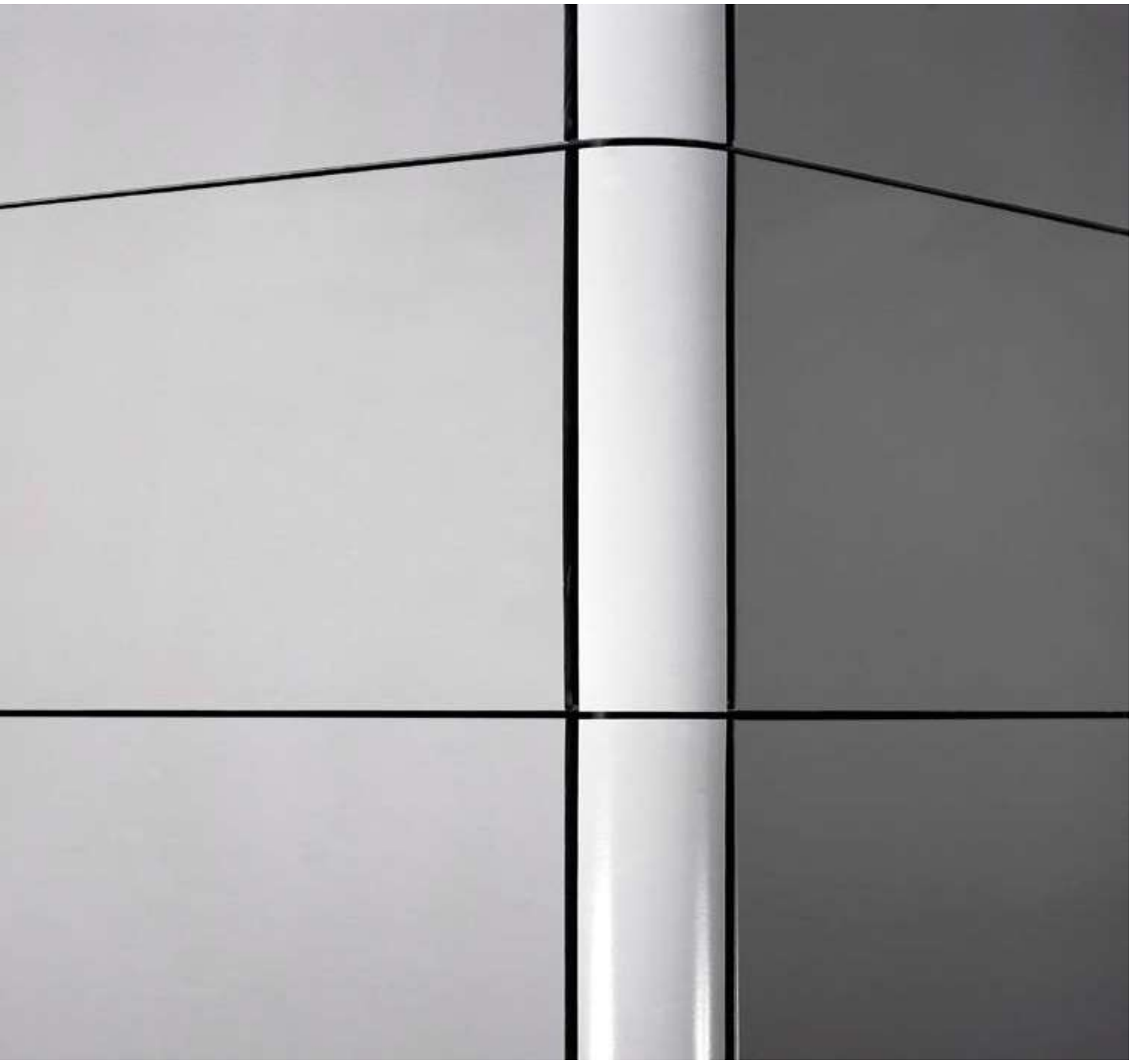
Article 506
Joint tape, black
Weight: 0.5 kg / roll
Nominal dimensions:
40 mm wide, 50 m
self-adhesive, weather-resistant

* Alternatively, nonrigid installation is also possible with PUR or MS polymer bonding materials. Suitable products on request.

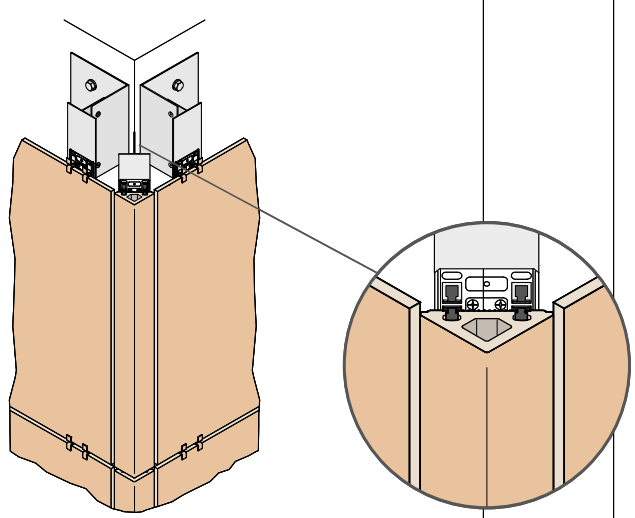
Important: The use of silicone caoutchoucs must be absolutely avoided, because silicone fluids segregate and effect sticky surfaces on which dirt adheres. Therefore, only use the system components mentioned (foamed pieces, EDPM rubber profile, neoprene rubber washer) and pointing, bonding and sealing materials recommended by us. We will be pleased to inform you in detail. The usual final cleaning after completion of the construction works is still required

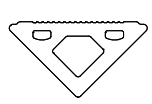
KerAion® detail solutions

Critical corners and terminations of all types can also be perfectly executed with KerAion® with regard to aesthetics and building physics. Rectangular corner profiles, 3D profiles and radial corner pieces offer safety and design freedom at the same time. For window and door reveals, special solutions with invisible fastening by means of clasps are available. All detail solutions are adapted to the project-specific requirements as special production if required.



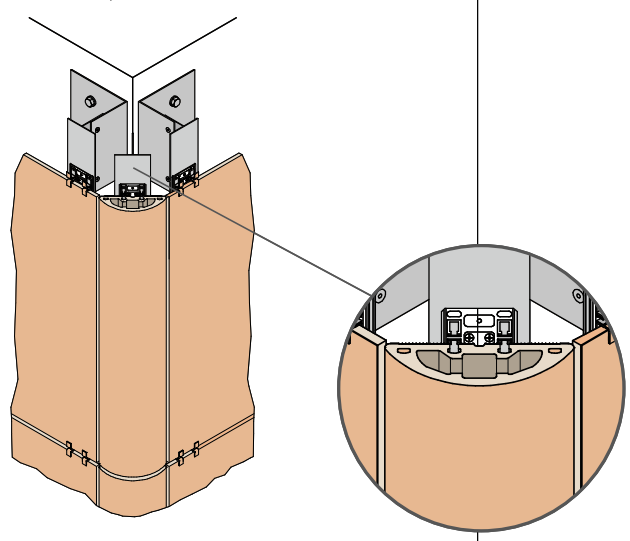
Corner profile 55 *

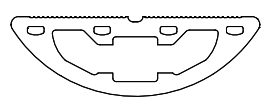




Cross-section of corner profile 55

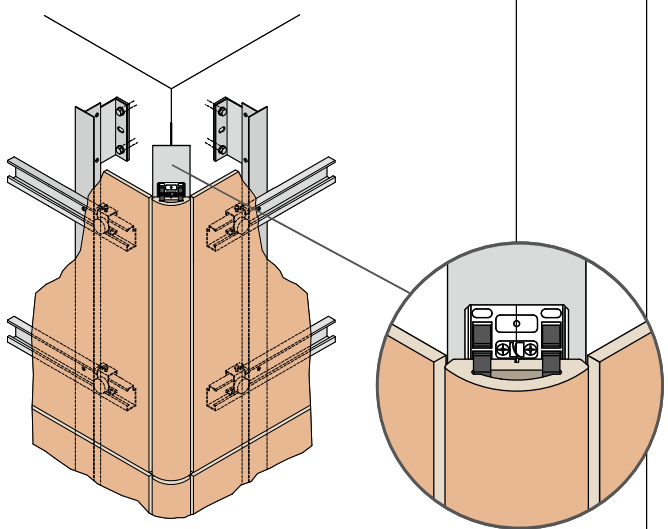
3D profile *

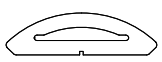




Cross-section of 3D profile

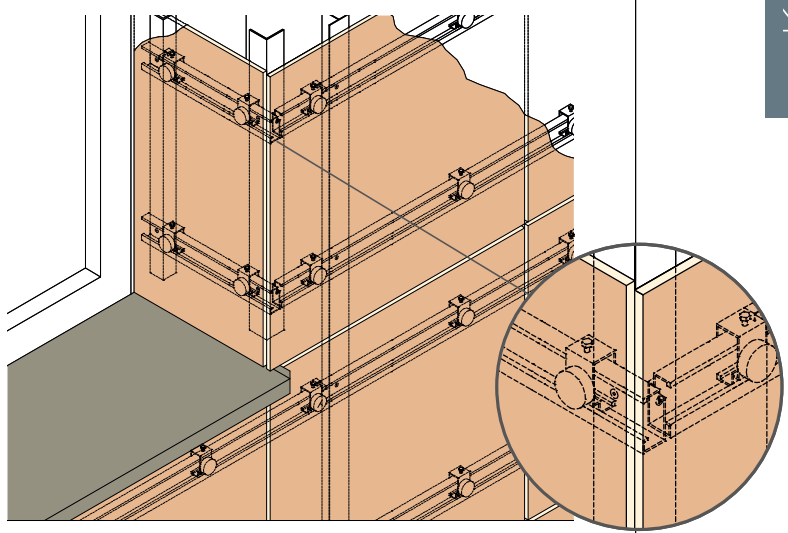
Radial corner piece *





Cross-section of radial corner piece

Reveal Quadro clasp



* product-specific details, project-related on request.