Swimming pool construction

Rehazenter, Luxembourg · Architects: m3 architectes s.a. · Dell, Linster, Lucas, Luxembourg · Photo: Weber, Luxembourg · Tile range: PRO ARCHITECTURA
Impressive technology and versatile design: with the new modular range, we are offering you all the elements and trims you need for both building new and renovating existing swimming pools and wellness facilities. As your contact for ambitious planning requirements, we accompany you from the initial idea through to implementation.

Improvements to key components in our range include, for example:

- Expansion of the trim system for the “Finnish” and “Wiesbaden” overflow channel and inclusion of trims for the “Berlin” overflow channel
- New overflow channels for all systems with a variable channel size
- New trims for shallow drainage channels in the pool rim
- Additions to the curved and cove base ceramic beading system
- Enlargement of the overflow channel volume and of the outlet openings to increase the outlet quantity
- Black as new colour alongside white, aquamarine and dark blue
- New format 10 x 20 cm for PRO ARCHITECTURA with barefoot B and C slip resistance

Villeroy & Boch tiles also offers you the following service:

- Individual technical advice for swimming pool projects (new construction and renovation)
- Design planning
- CAD-supported, structural design of swimming pools

In combination with modular concepts, such as PRO ARCHITECTURA and various vilbostone porcelain stoneware ranges, you have great freedom when designing a wide variety of different swimming pools.
Swimming pool construction
Swimming pool construction

Aquapark Bruntáli, Czech Republic

„Schwimmoper“ indoor swimming pool in Wuppertal, pbr Planungsbüro Rohling AG
LANDIDYLL Hotel "Michels", Schalkenmehren

„Fron Badeland“, Norway · Photo: www.imagephoto.no
Defining the modular dimensions

The line of swimming pool ceramics consists of modular trims in a nominal length of 200 mm (197 mm + 3 mm joint) and modular tiles from the PRO ARCHITECTURA range.

Modular tiles are based on the basic module “M” (100 mm) and multiples thereof, plus smaller supplementary dimensions, e.g. 50 mm. The modular dimensions of our tiles and functional trims are derived from the factory dimensions plus the joint width. The smaller the tile/functional trim, the smaller the joint can be. The resulting modular dimension will not change. The small format tiles (10 x 10 cm, 5 x 5 cm and 2.5 x 2.5 cm) are supplied on ready-to-set sheets. The sheets are available with the lattice paper attached on the front or back. For wet areas is required using tiles with lattice paper on the front only or with glass fibre lattice backing only.

Lattice paper on front and glass fibre lattice backing must be specified when placing orders.

Formats larger than 10 x 10 cm are supplied loose in the box.

All pool dimensions (rough shell and finished), fixtures, recesses for inlets and drains must be coordinated. The rough shell planning is made on the basis of the tile planning. The V&B Fliesen GmbH tile planning service is free of charge.

Please contact your sales agent or the Planning Department directly, at

V&B Fliesen GmbH
Objektplanung - Technik + Gestaltung
Herr Marco Warschburger
Rotensteiner Weg
D-66663 Merzig
Tel.: +49 (0)6864 - 81 3245
Fax: +49 (0)6864 - 81 3592
E-Mail: marco.warschburger@vb-fliesen.com
Fundamentals of swimming pool construction

The (nominal) length of the functional trims (200 mm) determines a basic linear division for the dimensions of the pool in multiples of 200 mm. As in masonry, this is a break dimension and an additional joint must be included.

- The finished length of the pool is therefore calculated as follows: finished length = n x 200 mm + 3 mm
- The rough shell length is calculated as follows: Rough shell length = finished length + 2 x construction thickness of walls
  The walls are made of plaster, mortar and tiles = generally 25 mm.
  The rough shell length is therefore the finished length + 50 mm.
- The position of the drains: position from edge = n x 200 mm + 101.5 mm
- The axial spacing of the drains is:
  centre distance = n x 200 mm
- The pool depth is calculated by:
  depth = height of trim + n x 100 mm + 5 mm

To allow continual and uniform overflow, care must be taken when laying the pool edge that it is perfectly horizontal and level. According to the German “Guidelines for pool construction” deviations in height of +/- 2 mm are acceptable.

Special notes:
Please specify in your order if you require lattice paper on the front side of mosaic tiles.

All system components and trims are made to order for your specific project.
The number of drains depends on the size of the pool, the size of the overflow channels and the water circulation, and should be calculated by a water-treatment firm. Approx. 2 – 3.5 m can be taken as a general guideline for the centre distance, depending on the overflow system. Drain funnels (available from manufacturers of accessories) should be concreted in to compensate for installation tolerances in the drain piping.

Villeroy & Boch tiles supplies drain connectors or whispering drains to connect the tiles around the drain to the piping. These should be ordered separately. As shown in the installation instructions, the tiler should attach the short connector to the drain with epoxy resin. The whispering drain is inserted from above and secured with a rubber seal.

**Drain dimensions in mm**

<table>
<thead>
<tr>
<th>Art.</th>
<th>A</th>
<th>B</th>
<th>C</th>
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*Special note:*
Outlet connectors and whispering drains must be ordered separately.
Overview of pool edge systems

High water level

Finnish “Pyrmont” system
Art. 3010, Art. 3014, Art. 3600
Uses (preferable):
Outdoor, recreation,
sport and teaching pools

<table>
<thead>
<tr>
<th>Article number</th>
<th>Material</th>
<th>PN00</th>
<th>PN13</th>
<th>PN55</th>
<th>PN56</th>
<th>PN57</th>
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Pool edge

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<td>Ladder Art. 3055</td>
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## Overview of pool edge systems

**High water level**

<table>
<thead>
<tr>
<th>System trim</th>
<th>Article number</th>
<th>Material</th>
<th>PRO ARCHITECTURA-colours</th>
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<tbody>
<tr>
<td>&quot;Wiesbaden&quot; small overflow channel</td>
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<tr>
<td>Channel piece</td>
<td>Art. 3670</td>
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<td>Channel piece, half length</td>
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<td>Inside corner</td>
<td>Art. 3674</td>
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<tr>
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<td>Art. 3675</td>
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<td>· · · ·</td>
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<td>Channel piece, left end tile</td>
<td>Art. 3676</td>
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<td>Channel piece, right end tile</td>
<td>Art. 3677</td>
<td>Glazed vitreous</td>
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| "Wiesbaden" large overflow channel |                |                  |                           |      |
| Channel piece                | Art. 3690      | Glazed vitreous  | · · · ·                    | 20   |
| Channel piece with outlet    | Art. 3691      | Glazed vitreous  | · · · ·                    | 20   |
| Channel piece, half length   | Art. 3692      | Glazed vitreous  | · · · ·                    | 20   |
| Inside corner                | Art. 3694      | Glazed vitreous  | · · · ·                    | 20   |
| Outside corner               | Art. 3695      | Glazed vitreous  | · · · ·                    | 20   |
| Channel piece, left end tile | Art. 3696      | Glazed vitreous  | · · · ·                    | 20   |
| Channel piece, right end tile| Art. 3697      | Glazed vitreous  | · · · ·                    | 20   |

"Wiesbaden" system
Art. 3670, Art. 3690, Art. 3680
Uses (preferable):
Indoor, outdoor, recreation, fun and hotel pools

High water level

"Wiesbaden" system
Art. 3670, Art. 3690, Art. 3680
Uses (preferable):
Indoor, outdoor, recreation, fun and hotel pools

"Wiesbaden" system
Art. 3670, Art. 3690, Art. 3680
Uses (preferable):
Indoor, outdoor, recreation, fun and hotel pools
### Overview of pool edge systems

#### High water level

<table>
<thead>
<tr>
<th>System trim</th>
<th>Article number</th>
<th>Material</th>
<th>PRO ARCHITECTURA-colours</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>“Wiesbaden” large overflow channel with mosaic recess</strong></td>
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<td>Channel piece</td>
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<td>Channel piece with outlet</td>
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<td>Channel piece half length</td>
<td>Art. 3682</td>
<td>Glazed vitreous</td>
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<tr>
<td>Inside corner</td>
<td>Art. 3694</td>
<td>Glazed vitreous</td>
<td>• • • •</td>
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<tr>
<td>Outside corner</td>
<td>Art. 3685</td>
<td>Glazed vitreous</td>
<td>• • • •</td>
<td>21</td>
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</tbody>
</table>

*“Berlin” overflow channel*

Art. 3540

Uses (preferable): Indoor, outdoor, recreation, fun and hotel pools

<table>
<thead>
<tr>
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<th>Article number</th>
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<th>PRO ARCHITECTURA-colours</th>
<th>Page</th>
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<tbody>
<tr>
<td><strong>“Berlin” overflow channel</strong></td>
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<tr>
<td>Pool running edge</td>
<td>Art. 3540</td>
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<tr>
<td>Pool running edge, half length</td>
<td>Art. 3542</td>
<td>Glazed vitreous</td>
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<tr>
<td>Inside corner</td>
<td>Art. 3544</td>
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<tr>
<td>Outside corner</td>
<td>Art. 3545</td>
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### Accessories

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<td>Whispering drain</td>
<td>Art. 3972</td>
<td>Plastic, white</td>
<td>10</td>
</tr>
<tr>
<td>Drain connector</td>
<td>Art. 3952</td>
<td>Plastic, yellow</td>
<td>10</td>
</tr>
<tr>
<td>Whispering drain</td>
<td>Art. 3963</td>
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</tbody>
</table>
Overview of pool edge systems

Low water level

**“Wiesbaden” system**
Art. 3660, Art. 3630
Uses (preferable):
Indoor, outdoor
and therapy pools

**“Therapy” system**
Art. 3660
Uses (preferable):
Therapy pools

<table>
<thead>
<tr>
<th>System trim</th>
<th>Article number</th>
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<td>PN00 PN04 PN12 PN13</td>
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<tr>
<td><strong>“Wiesbaden” small overflow channel &amp; “Therapy” system</strong></td>
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<tr>
<td>Channel piece</td>
<td>Art. 3660</td>
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<td>Channel piece with outlet</td>
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<tr>
<td>Channel piece, half length</td>
<td>Art. 3662</td>
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<td>Inside corner</td>
<td>Art. 3664</td>
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<td>Art. 3665</td>
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<td>Channel piece, left end tile</td>
<td>Art. 3666</td>
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| **“Wiesbaden” large overflow channel & “Therapy” system** | | | | |
| Channel piece | Art. 3630 | Glazed vitreous | • • • • | 24 |
| Channel piece with outlet | Art. 3631 | Glazed vitreous | • • • • | 24 |
| Channel piece, half length | Art. 3632 | Glazed vitreous | • • • • | 24 |
| Inside corner | Art. 3634 | Glazed vitreous | • • • • | 24 |
| Outside corner | Art. 3635 | Glazed vitreous | • • • • | 24 |
| Channel piece, left end tile | Art. 3636 | Glazed vitreous | • • • • | 24 |
| Channel piece, right end tile | Art. 3637 | Glazed vitreous | • • • • | 24 |
Overview of pool edge systems

Low water level

<table>
<thead>
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<td>Whispering drain</td>
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<td>Drain connector</td>
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“Skimmer” system

Art. 3650
Uses (preferable):
Private pools

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<th>Pool running edge</th>
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<tr>
<td>Pool running edge, half length</td>
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<td>Glazed vitreous</td>
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</tr>
<tr>
<td>Inside corner</td>
<td>Art. 3654</td>
<td>Glazed vitreous</td>
<td>• • • • •</td>
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<tr>
<td>Outside corner</td>
<td>Art. 3655</td>
<td>Glazed vitreous</td>
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Overview of pool edge systems

### Curved and cove base ceramic beading

<table>
<thead>
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<tr>
<td>Cove base ceramic beading Inside corner</td>
<td>Art. 3126</td>
<td>Glazed vitreous</td>
<td>• • • •</td>
<td>32</td>
</tr>
<tr>
<td><strong>Large curved ceramic beading</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curved ceramic beading r=55</td>
<td>Art. 3161</td>
<td>Glazed vitreous</td>
<td>• • • •</td>
<td>32</td>
</tr>
<tr>
<td>Curved ceramic beading r=55, half length</td>
<td>Art. 3162</td>
<td>Glazed vitreous</td>
<td>• • • •</td>
<td>32</td>
</tr>
<tr>
<td>Curved ceramic beading Outside corner</td>
<td>Art. 3164</td>
<td>Glazed vitreous</td>
<td>• • • •</td>
<td>32</td>
</tr>
<tr>
<td>Curved ceramic beading Inside corner</td>
<td>Art. 3165</td>
<td>Glazed vitreous</td>
<td>• • • •</td>
<td>32</td>
</tr>
<tr>
<td><strong>Large cove base ceramic beading</strong></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Cove base ceramic beading r=45</td>
<td>Art. 3160</td>
<td>Glazed vitreous</td>
<td>• • • •</td>
<td>32</td>
</tr>
<tr>
<td>Cove base ceramic beading Outside corner</td>
<td>Art. 3163</td>
<td>Glazed vitreous</td>
<td>• • • •</td>
<td>32</td>
</tr>
<tr>
<td>Cove base ceramic beading Inside corner</td>
<td>Art. 3166</td>
<td>Glazed vitreous</td>
<td>• • • •</td>
<td>32</td>
</tr>
</tbody>
</table>

Curved and cove base ceramic beading

Art. 3120, Art. 3160
Uses (preferable): Indoor, outdoor, recreation, fun and hotel pools
Overview of pool edge systems

Channel in the pool rim

Channel piece, Art. 3620
Uses (preferable):
Drainage channels, pool rims
### Pool edge systems in detail

#### High water level/"Finnish" overflow system

<table>
<thead>
<tr>
<th>Art.</th>
<th>Description</th>
<th>PN Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>3010</td>
<td>Grip trough</td>
<td>PN55, PN56, PN57, PN58</td>
</tr>
<tr>
<td>3011</td>
<td>Grip trough with outlet</td>
<td>PN55, PN56, PN57, PN58</td>
</tr>
<tr>
<td>3012</td>
<td>Inside corner</td>
<td>PN55, PN56, PN57, PN58</td>
</tr>
<tr>
<td>3013</td>
<td>Outside corner</td>
<td>PN55, PN56, PN57, PN58</td>
</tr>
<tr>
<td>3014</td>
<td>Grating support</td>
<td>PN00, PN13</td>
</tr>
<tr>
<td>3015</td>
<td>Inside corner</td>
<td>PN00, PN13</td>
</tr>
<tr>
<td>3016</td>
<td>Outside corner</td>
<td>PN00, PN13</td>
</tr>
<tr>
<td>3017</td>
<td>Angle grating support</td>
<td>PN00</td>
</tr>
<tr>
<td>3018</td>
<td>Channel piece</td>
<td>PN00</td>
</tr>
<tr>
<td>3019</td>
<td>Channel piece with outlet</td>
<td>PN00</td>
</tr>
<tr>
<td>3020</td>
<td>Channel piece, half length</td>
<td>PN00</td>
</tr>
<tr>
<td>3030</td>
<td>Inside corner</td>
<td>PN00</td>
</tr>
<tr>
<td>3031</td>
<td>Outside corner</td>
<td>PN00</td>
</tr>
</tbody>
</table>

### Applications
- Material: Glazed / unglazed vitreous
- Actual size: see diagrams

### Joints approx.
- Surface: formed, rough
- Finish: uni-coloured
- Glaze: matt
- Packing: Piece
- Calculation unit: Piece

### Matching wall tiles
- PRO ARCHITECTURA

### Special points
- Underwater edges such as steps or the front edge of the "Finnish" system must be accentuated with a stripe of a different colour (PN04, PN12).
- Depending on requirements, the following colour combinations are available:
  - PN55 = PN04 + PN13 (dark blue and aquamarine)
  - PN56 = PN12 + PN13 (black and aquamarine)
  - PN57 = PN00 + PN12 (white and black)
  - PN58 = PN00 + PN04 (white and dark blue)

In Germany, "Finnish" overflow systems are expected to satisfy the following requirements:
- The pool edge must offer something to hold onto (grip).
- The grip must be 15 mm high/deep.
- The grip must be situated within 100 mm of the vertical wall of the pool.
- The rear side of the grip should be as vertical as possible.
- The top of the grip must be accentuated by means of a stripe of contrasting colour measuring at least 2.5 cm across.
- The slope of the washover incline must be max. 10 %, and the surface finish must answer the description of slip resistance category C.
High water level/"Finnish" overflow system

Uses (preferable):
Indoor, outdoor, recreation, fun and hotel pools
Pool edge systems in detail

High water level/Large overflow channel "Wiesbaden"

Art. 3690
Channel piece
PN00, PN04, PN12, PN13

Art. 3691
Channel piece with outlet
PN00, PN04, PN12, PN13

Art. 3692
Channel piece, half length
PN00, PN04, PN12, PN13

Art. 3694
Inside corner (Mitred pair)
PN00, PN04, PN12, PN13

Art. 3695
Outside corner (Mitred pair, 4 part)
PN00, PN04, PN12, PN13

Art. 3696
Channel piece, left end tile
PN00, PN04, PN12, PN13

Art. 3697
Channel piece, right end tile
PN00, PN04, PN12, PN13

Applications
Pool edge - indoors / outdoors

Material
Glazed / unglazed vitreous

Actual size
see diagrams

Joints approx. 3 mm

Surface formed
Finishes
Uni-coloured

Glaze
Matt

Packing
Piece

Calculation unit
Piece

Matching wall tiles

PRO ARCHITECTURA

Water level +0.00

Capillary breaking joint filler

Reaction mortar filler

Watertight concrete

High water level – overflow channel with moulded trims

Uses (preferable):
Indoor, outdoor, recreation, fun and hotel pools

High water level – overflow channel with moulded trims

Uses (preferable):
Indoor, outdoor, recreation, fun and hotel pools

Approximate size

Surface

Finish

Glaze

Packing

Calculation unit

PRO ARCHITECTURA
Pool edge systems in detail

High water level/Large overflow channel „Wiesbaden“ with mosaic recess

Applications
Pool edge - indoors / outdoors

Material
Glazed / unglazed vitreous

Actual size
see diagrams

Joints approx.
3 mm

Surface
formed

Finish
uni-coloured

Glaze
matt

Packing
Piece

Calculation unit
Piece

Matching wall tiles
PRO ARCHITECTURA

High water level – overflow channel with moulded trims

Uses (preferable):
Indoor, outdoor, recreation, fun and hotel pools

Art. 3680
Channel piece
PN00, PN04, PN12, PN13

Art. 3681
Channel piece with outlet
PN00, PN04, PN12, PN13

Art. 3682
Channel piece, half length
PN00, PN04, PN12, PN13

Art. 3694
Inside corner (Mitred pair)
PN00, PN04, PN12, PN13

Art. 3685
Outside corner (Mitred pair, 4 part)
PN00, PN04, PN12, PN13

Art. 3680
Water level ±0.00

Capillary breaking joint filler

Inclination

Bonded waterproofing

Watertight concrete

PRO ARCHITECTURA

High water level – overflow channel with moulded trims

Uses (preferable):
Indoor, outdoor, recreation, fun and hotel pools
Pool edge systems in detail

High water level/Small overflow channel “Wiesbaden”

Applications
- Pool edge - indoors / outdoors

Material
- Glazed / unglazed vitreous

Actual size
- See diagrams

Joints approx.
- 3 mm

Surface
- Formed

Finish
- Uni-coloured

Glaze
- Matt

Packing
- Piece

Calculation unit
- Piece

Matching wall tiles
- PRO ARCHITECTURA

Applications
- Pool edge - indoors / outdoors

Material
- Glazed / unglazed vitreous

Actual size
- See diagrams

Joints approx.
- 3 mm

Surface
- Formed

Finish
- Uni-coloured

Glaze
- Matt

Packing
- Piece

Calculation unit
- Piece

Matching wall tiles
- PRO ARCHITECTURA

High water level – overflow channel with moulded trims

Uses (preferable):
- Indoor, outdoor, recreation, fun and hotel pools

Art. 3670
Channel piece
PN00, PN04, PN12, PN13

Art. 3671
Channel piece with outlet
PN00, PN04, PN12, PN13

Art. 3672
Channel piece, half length
PN00, PN04, PN12, PN13

Art. 3674
Inside corner (Mitred pair)
PN00, PN04, PN12, PN13

Art. 3675
Outside corner (Mitred pair, 4 part)
PN00, PN04, PN12, PN 13

Art. 3676
Channel piece,
left end tile
PN00, PN04, PN12, PN13

Art. 3677
Channel piece,
right end tile
PN00, PN04, PN12, PN13

Applications
- Bonded waterproofing
- Watertight concrete

Calculation unit
- Piece

Glaze
- Matt

Packing
- Piece
Pool edge systems in detail

High water level/Overflow channel "Berlin"

Applications
- Pool edge - indoors / outdoors
- Material: Glazed / unglazed vitreous
- Actual size: see diagrams
- Joints approx. 3 mm
- Surface: formed
- Finish: uni-coloured
- Glaze: matt
- Packing: Piece
- Calculation unit: Piece

Matching wall tiles: PRO ARCHITECTURA

Art. 3540
Pool running edge
PN00, PN04, PN12, PN13

Art. 3542
Pool running edge, half length
PN00, PN04, PN12, PN13

Art. 3544
Inside corner
PN00, PN04, PN12, PN13

Art. 3545
Outside corner
PN00, PN04, PN12, PN13

High water level – overflow channel with moulded trims

Uses (preferable):
- Indoor, outdoor, recreation, fun and hotel pools
Pool edge systems in detail

Low water level/Large overflow channel "Wiesbaden"

Applications  
Pool edge - indoors / outdoors

Material  
Glazed vitreous

Actual size  
see diagrams

Joints approx.  
3 mm

Surface formed  

Finish  
uni-coloured

Glaze  
matt

Packaging  
Piece

Calculation unit  
Piece

Matching wall tiles  
PRO ARCHITECTURA

Art. 3630
Channel piece
PN00, PN04, PN12, PN13

Art. 3631
Channel piece with outlet
PN00, PN04, PN12, PN13

Art. 3632
Channel piece, half length
PN00, PN04, PN12, PN13

Art. 3634
Inside corner (Mitred pair)
PN00, PN04, PN12, PN13

Art. 3635
Outside corner (Mitred pair, 4 part)
PN00, PN04, PN12, PN13

Art. 3636
Channel piece, left end tile
PN00, PN04, PN12, PN13

Art. 3637
Channel piece, right end tile
PN00, PN04, PN12, PN13

Applications

Material  
Glazed vitreous

Actual size  
see diagrams

Joints approx.  
3 mm

Surface formed  

Finish  
uni-coloured

Glaze  
matt

Packaging  
Piece

Calculation unit  
Piece

Matching wall tiles  
PRO ARCHITECTURA

Art. 3107

Matching wall tiles
PRO ARCHITECTURA

PRO ARCHITECTURA

Art. 3650

Bonded waterproofing

Capillary breaking joint filler

Watertight concrete

Water level  \( \pm 0.00 \)

Uses (preferable):
Indoor, outdoor, recreation, fun and hotel pools

Low water level – overflow channel with moulded trims
Pool edge systems in detail

Low water level/Small overflow channel "Wiesbaden"

Applications

- **Art. 3660**
  - Channel piece
  - PN00, PN04, PN12, PN13

- **Art. 3661**
  - Channel piece with outlet
  - PN00, PN04, PN12, PN13

- **Art. 3662**
  - Channel piece, half length
  - PN00, PN04, PN12, PN13

- **Art. 3664**
  - Inside corner (Mitred pair)
  - PN00, PN04, PN12, PN13

- **Art. 3665**
  - Outside corner (Mitred pair)
  - PN00, PN04, PN12, PN13

- **Art. 3666**
  - Channel piece, left end tile
  - PN00, PN04, PN12, PN13

- **Art. 3667**
  - Channel piece, right end tile
  - PN00, PN04, PN12, PN13

---

**Materials**

- **Art. 2405 "B"**
- **Art. 3660**
- **Art. 3107**
- **Art. 3669**

**Use:**

Indoor, outdoor, recreation, fun and hotel pools

---

**Applications**

- **Pool edge - indoors / outdoors**
- **Material** Glazed vitreous
- **Actual size** see diagrams
- **Joints approx.** 3 mm
- **Surface formed** uni-coloured
- **Flange** matt
- **Packing** Piece
- **Calculation unit** Piece

**Matching wall tiles** PRO ARCHITECTURA
Pool edge systems in detail

Low water level | Pool edge piece

<table>
<thead>
<tr>
<th>Art.</th>
<th>Description</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>3650</td>
<td>Pool running edge</td>
<td>±0.00</td>
</tr>
<tr>
<td>3652</td>
<td>Pool running edge, half length</td>
<td>±0.00</td>
</tr>
<tr>
<td>3654</td>
<td>Inside corner (Mitred pair)</td>
<td>±0.00</td>
</tr>
<tr>
<td>3655</td>
<td>Outside corner (Mitred pair)</td>
<td>±0.00</td>
</tr>
</tbody>
</table>

Applications
- Pool edge - indoors / outdoors
- Material: Glazed / unglazed vitreous
- Actual size: see diagrams
- Joints approx. 3 mm
- Surface: formed
- Finish: uni-coloured
- Glaze: matt
- Packing: Piece
- Calculation unit: Piece

Matching wall tiles: PRO ARCHITECTURA

Note:
To ensure swimming pool water of hygienic quality, the water is to be treated and disinfected in accordance with DIN 19643-1 (treatment of water for swimming pools). To prevent fungal attack, the surfacing is to undergo thorough cleaning once annually, replacing the entire filling of water.

Pool edge systems in detail

Low water level – ‘Skimmer’ system

Uses (preferable):
- Private pools
• The rounded-off pool border is higher than the pool surround.
• The water level is approximately 50-60 cm above the pool surround.
• The water flows over the pool border, running down the outside and into the overflow channel, the top of which is flush with the pool surround.
• The overflow is executed either as a shallow, open trough or as a grate-covered, tiled, channel.
• Small format tiles are preferable.
• With deference to possible erosion, epoxy resin should be used for filling the joints.
In Germany, the design and construction of medicinal baths is subject to the following basic rules:

- The minimum dimensions for therapy pools are 3 x 4 m.
- The minimum water depth is 0.5 m for children and 0.8 m for adults.
- The maximum water depth is 1.35 m.
- The pool must have an overflow channel running along all its sides. Skimmers are not acceptable for hygienic reasons.
- The slope of the pool’s floor should ideally be constant, and should not exceed 4%.
- The pool must have an overflow channel on at least one side and one end.
- As a rule, the therapist’s gallery should run along one side of the pool and have a minimum width of 75 cm and a minimum depth of 80 cm.
- A handrail or ledge must be provided at the edge of the pool (water level).
- The steps must be at least 60 cm wide.
- The maximum slope for ramps is 15%.

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- The maximum slope for ramps is 15%.
Pool edge systems in detail - Fixtures

Pool access steps

Applications: Pool edge - indoors / outdoors
Material: Glazed / unglazed vitreous
Actual size: see diagrams
Joint approx.: 3 mm
Surface: formed, rough
Finish: uni-coloured
Glaze: matt
Packing: Piece
Calculation unit: Piece
Matching wall tiles: PRO ARCHITECTURA

Special points
Underwater edges such as steps or the front edge of the “Finnish” system must be accentuated with a stripe of a different colour (PN04, PN12).
Depending on requirements, the following colour combinations are available:
- PN55 = PN04 + PN13 (dark blue and aquamarine)
- PN56 = PN12 + PN13 (black and aquamarine)
- PN57 = PN00 + PN12 (white and black)
- PN58 = PN00 + PN04 (white and dark blue)

In Germany, “Finnish” overflow systems are expected to satisfy the following requirements:
- The pool edge must offer something to hold onto (grip).
- The grip must be 15 mm high/deep.
- The grip must be situated within 100 mm of the vertical wall of the pool.
- The rear side of the grip should be as vertical as possible.
- The top of the grip must be accentuated by means of a stripe of contrasting colour measuring at least 2.5 cm across.
- The slope of the washover incline must be max. 10 %, and the surface finish must answer the description of slip resistance category C.

PN55 = PN04 dark blue + PN13 aquamarine
PN56 = PN12 black + PN13 aquamarine
PN57 = PN00 white + PN12 black
PN58 = PN00 white + PN04 dark blue
Pool edge systems in detail - Fixtures

Applications: Ladder - indoors / outdoors
- Material: Glazed vitreous
- Actual size: see diagrams
- Joints approx.: 3 mm
- Surface formed: Finish uni-coloured
- Glaze: matt
- Packing: Piece
- Calculation unit: Piece

Matching wall tiles PRO ARCHITECTURA
Curved and cove base ceramic beading

Art. 3161
Curved ceramic beading
r=55
PN00, PN04, PN12, PN13

Art. 3121
Curved ceramic beading
r=30
PN00, PN04, PN12, PN13

Art. 3162
Curved ceramic beading
r=55, half length
PN00, PN04, PN12, PN13

Art. 3122
Curved ceramic beading
r=30, half length
PN00, PN04, PN12, PN13

Art. 3164
Curved ceramic beading
Outside corner
PN00, PN04, PN12, PN13

Art. 3124
Curved ceramic beading
Outside corner
PN00, PN04, PN12, PN13

Art. 3165
Curved ceramic beading
Inside corner
PN00, PN04, PN12, PN13

Art. 3125
Curved ceramic beading
Inside corner
PN00, PN04, PN12, PN13

Art. 3160
Cove base ceramic beading
r=45
PN00, PN04, PN12, PN13

Art. 3120
Cove base ceramic beading
r=20
PN00, PN04, PN12, PN13

Art. 3163
Cove base ceramic beading
Outside corner
PN00, PN04, PN12, PN13

Art. 3123
Cove base ceramic beading
Outside corner
PN00, PN04, PN12, PN13

Art. 3166
Cove base ceramic beading
Inside corner
PN00, PN04, PN12, PN13

Art. 3126
Cove base ceramic beading
Inside corner
PN00, PN04, PN12, PN13

Applications
- Pool edge - indoors / outdoors
- Material: Glazed vitreous
- Actual size: see diagrams
- Joints approx.: 3 mm
- Surface: formed
- Finish: uni-coloured
- Glaze: matt
- Packing: Piece
- Calculation unit: Piece

Matching wall tiles: PRO ARCHITECTURA
Pool edge systems in detail - Fixtures

Curved and cove base ceramic beading

Water level ±0.00

Art. 3161

Art. 3709

Capillary breaking joint filler

Art. 2641 "B"

Bonded waterproofing

Art. 3121

Art. 3709

Art. 3160

Reaction resin filler

Watertight concrete

Top concrete layer
Functional trims for pool surrounds

Ceramic channel in the pool rim

Art. 3620
Channel piece
PN00, PN09, PN12, PN31

Art. 3622
Channel piece, half length
PN00, PN09, PN12, PN31

Art. 3621
Channel piece with outlet
PN00, PN09, PN12, PN31

Art. 3624
Inside corner/Outside corner
PN00, PN09, PN12, PN31

Art. 3626
End piece
PN00, PN09, PN12, PN31

Applications
- Pool rim - indoors / outdoors

Material
- Glazed vitreous

Actual size
- see diagrams

Joints approx.
- 3 mm

Surface
- formed

Finish
- uni-coloured

Glaze
- matt

Packing
- Piece

Calculation unit
- Piece

Matching wall tiles
- PRO ARCHITECTURA

Pool surrounding concrete construction

Bonded waterproofing

Pool rim - indoors / outdoors

Glazed vitreous

Inclination

Art. 2200 "B" - Inclination

Art. 3620 "B" - Inclination

3 mm

Formed

Uni-coloured

Matt

Piece

Piece

PRO ARCHITECTURA
Swimming pool renovation

Thanks to its decades of experience, Villeroy & Boch tiles is the competent partner for the construction of new and restoration of existing swimming pools. Our company offers you a consultation and planning service that will assist you in all stages of project implementation. Please talk to the Villeroy & Boch tiles sales representatives or to the relevant department directly.

When renovating swimming baths, it is often necessary to install a composite seal directly under the tile covering.
Technical aspects of application for swimming pools

Static systems, movement joints

The pool must be structurally independent of the remaining structure. The structural engineer is responsible for selecting the static system. His decision dictates the arrangement of movement joints around and, where necessary, within the pool.

Nowadays, pool surrounds are usually waterproofed with brushable coatings, so-called alternative waterproofing, in accordance with ZDB leaflet.

Waterproofing of movement joints for overflow systems

The movement joint is situated in an area which is exposed to high strain through water. The type of waterproofing to be used for the joint depends on the waterproofing of the pool surround.

Watertight concrete

Capillary breaking joint filler
Tiles
Thin-bed mortar
Bonded waterproofing
Elastic joint sealant with closed cell rope
Sealing tape
Sloping screed covered with thermal insulation, protective sheet and reinforced screed

Surround formed as single span slab
Surround formed as cantilever slab on the pool
Surround formed as cantilever slab on the structure
Technical aspects of application for swimming pools

**Pool construction**

Pools to be clad with tiles are generally made of reinforced concrete as per DIN 1045.

In some cases, pools made of stainless steel, e.g. on pleasure cruisers, or plastic can also be lined with vitreous tiles.

The following considerations apply exclusively to reinforced waterlight concrete pools.

This can be achieved by:
- using impermeable concrete or
- waterproofing.

After completing the reinforced concrete body of the pool, in order to verify watertightness, the customer is to fill the pool with chlorinated water for test purposes to the level of the rim around the pool (exposed concrete). The outside of freestanding pools should also not be waterproofed until after the leak test.

Marking the water level during the leak test provides an excellently accurate line of reference for positioning the ceramic accessories for the overflow without the need for carrying out special additional measurements.

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**Pools made of watertight concrete**

The pool is made of impermeable concrete in accordance with DIN 1045 and the structural analysis.

The concrete must be and remain free of cracks.

The following points should be heeded when building the pool:
- Proper composition of aggregates and accordingly a low water/cement ratio.
- For practical reasons, pool floors and walls should be at least 25 cm thick and the upturn behind and/or in front of the drainage channel should be at least 15 cm thick, in the absence of any additional sealing.
- Optimal compaction of freshly poured concrete by means of an immersion vibrator.
- Appropriate aftertreatment of concrete (by keeping it moist)
- Minimum overlap of reinforcing rods: 5 cm.
- For pools intended to be filled with aggressive water, e.g. salt water, the bonding agents used should be selected on the basis of a water analysis.
- It is desirable to pour the floor and walls in a single operation. Should a construction joint between the floor and the walls be necessary, a stop-end joint tape must be inserted.
Technical aspects of application for swimming pools

Pool construction

Pools with composite seal (CS) with ceramic covering

As a technical rule for this type of waterproofing see the leaflet from the ZDB “Ceramic tiles in swimming pool construction - Advice on planning and implementation.” and DIN 18195-7.

Materials used:
- Synthetic mortar mixtures – dry layer thickness min. 2.0 mm
- Reactive resins – dry layer thickness min. 1.0 mm

or the minimum layer thicknesses as specified in the general building inspectorate test certificates of the respective manufacturer must be observed.

Suitable bases
- Concrete in accordance with DIN 1405 and DIN 4227
- Underlay waterproof plaster in accordance with DIN 18550, mortar group P III

- Levelling screed as bonded levelling screed in accordance with DIN 18560, quality ZE 20

The dimensional accuracy of the backing should correspond with the finished cladding. Considerable unevenness should be compensated for beforehand with underlay waterproof plaster or levelling screed.

The base material must be free of adherents, debris, dust, binding agents, efflorescence or other contaminants that could impair adhesion.

Concrete surfaces on the pool walls should be sandblasted.

Resulting cracks or the movement of existing cracks should not exceed 0.2 mm unless there is proof that the relevant sealant is able to bridge larger cracks.

Waterproofing

Is to be carried out according to the general building inspectorate test certificates of the respective manufacturer. The thickness of the waterproofing depends on the material used and on the manufacturers’ specifications.

The waterproofing is applied by filling, smoothing, rolling or spraying onto the cleaned substrate. As a rule, the waterproofing has to be applied in at least two work processes in accordance with the manufacturer’s instructions.

At structure joints and corners wherever movements are to be expected, the waterproofing should be reinforced with bonded fabric or sealing collars.

Pipes are incorporated in the surface waterproofing by means of a gasket or flange. Floor drains need a wide flange to take the waterproofing.

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Technical aspects of application for swimming pools

Ceramic claddings

In principle all types of tiling belong to one of the following groups:
- Bonded claddings
- Floating claddings

**Bonded claddings**

Bonded claddings are based on the principle of frictional connection, i.e. no movement is possible between the ceramic tiles and the solid base, much like in a reinforced concrete component.

The conventional setting method involves the use of bedding mortar, while the thin bed method in accordance with DIN 18157 relies on an adhesive to effect the bond. To achieve a good bond, the base material must be free of the following:
- residue and debris such as wood, metal, formwork lube or other contaminating layers that could impair adhesion
- cracks or efflorescence
- considerable unevenness
- too smooth a surface.

Movement joints should be positioned at the edges and at existing structural joints.

**Floating claddings**

A floating cladding is when the cladding is separated from the backing by insulation, foils, oil-impregnated paper or the like in accordance with DIN 18195.
Technical aspects of application for swimming pools

Ceramic claddings

Pool claddings

In the case of a swimming pool made of impermeable concrete the tiles are attached by means of the BONDED CLADDING principle.

VOB-DIN 18352 “Working with tiles and slabs” applies for bonded cladding in mortar (so-called conventional or thick bed tiling)

DIN 18157 “Tiling ceramic coverings using the thin bed method” applies for thin bed tiling.

DIN 18550 “Plaster” applies for screeds, DIN 18560 – Part 3 “The use of screeds – bonded screeds”.

If the backing is as level as the finished cladding is expected to be, the tiles can be fixed directly to the concrete by the thin bed method.

In general, however, it is necessary to compensate for a certain amount of unevenness. This is done by applying an underlay of waterproof plaster of mortar group III, preferably pure cement plaster. The tiles are attached to the prepared backing with a thin bed of hydraulic mortar in accordance with DIN 18156, Part 2.

When fixing the tiles directly on to the shotcrete with a cement-based mortar, the back of the vitreous tiles must first be powdered lightly with cement or coated with cement-based grout.

Most serious damage resulting from the failure of the bond between the tiles and the backing is caused by shear stresses building up in the interface. Shear stress occurs most often when the “young” concrete is tiled before it has finished shrinking.

Note:

To ensure swimming pool water of hygienic quality, the water is to be treated and disinfected in accordance with DIN 19643-1 (treatment of water for swimming pools). To prevent fungal attack, the surfacing is to undergo thorough cleaning once annually, replacing the entire filling of water.
Floor and wall claddings in wet rooms

Floor claddings which are classified as having a high exposure to moisture require waterproofing and that the floors slope towards the drains. The slope of the waterproofing layer corresponds to that of the finished tiling. For ceramic tiles a slope of 1 – 2 % is usually sufficient. In showering rooms the floor in the vicinity of the showers should slope at a 3% gradient.

The waterproofing must extend over movement joints. Permalastic sealing strips should be used for this purpose. (Figure 1)

Drains are to be integrated into the surface waterproofing by means of a flange or gasket. (Figure 2)

The level of the floor at the transition between wet and dry rooms can be the same. The transition should, however, not lie within the splash area and the rooms should be separated by a door. The floor of the wet room should slope sufficiently towards the drain.

Pipes and tap fittings that penetrate wall claddings are integrated into the surface waterproofing by means of a press-on flange.

Figure 1: Waterproofing on screed joint

Figure 2: Waterproofing connection at drain
Ceramic tiles on underfloor heating

Screeds on an insulating layer and heated screeds should be reinforced. These screeds are to be divided into sections by section boundary joints: in unheated screeds maximum 60 m² in size with a maximum edge length of 8 m and in heated screeds maximum 40 m² in size with a maximum edge length of 6.5 m. Compact sections should be created wherever possible. Structural joints should be taken on in the same width and in the same location. The screed sections should also be subdivided at doorways and wall projections. The heating pipes should not cross the section joints in heated screeds where possible. If this should prove necessary, 300 mm long pipe sleeves should be used.
**PRO ARCHITECTURA**

**Colours**

**Glazed vitreous EN 14411-Bi<sub>1</sub> · Walls and floors**

**Glazed porcelain stoneware EN 14411-Bi<sub>1</sub> · Walls and floors**

- PN01 green
- PN02 dark green
- PN03 blue
- PN04 dark blue
- PN05 yellow
- PN06 orange
- PN07 red
- PN08 dark red

**vilbostone porcelain stoneware EN 14411-Bi<sub>1</sub> · Floors**

**GRANIFLOOR**

- PN80
- PN81
- PN82
- PN83
- PN84

**Glazed vitreous EN 14411-Bi<sub>1</sub> / Glazed porcelain stoneware EN 14411-Bi<sub>1</sub> · Walls and floors**

- aquamarine Line
- turquoise Line
- emerald Line
- jade Line
- beryl Line
- citrine Line
- topaz Line
- amber Line
- carneol Line

**vilbostone porcelain stoneware EN 14411-Bi<sub>1</sub> · Floors**

- PN85
- PN86
- PN87
- PN88
- PN89
- PN90
- PN91
- PN92
- PN93
### Overview of products

#### Glazed vitreous

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#### Glazed porcelain stoneware

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#### Multi-purpose trims

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#### Functional trims

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1 Glazed vitreous

2 Glazed porcelain stoneware
vilstone unglazed porcelain stoneware

2.5 x 2.5 cm Art. 2702

15 x 15 cm Art. 2404

20 x 20 cm Art. 2248

30 x 30 cm Art. 2213

60 x 60 cm Art. 2014

Shower tray construction system
5 x 5 cm Art. 2371 Art. 2706

10 x 10 cm Art. 2200

15 x 15 cm GRANIFLOOR

20 x 20 cm GRANIFLOOR

30 x 30 cm GRANIFLOOR

60 x 60 cm GRANIFLOOR

~ = EU Ecolabelled products
= One glazed edge
= Frostproof in acc. with DIN EN ISO 10545-12
R9, R10, R11, R12 V4 = Anti-slip in workshop areas
A, B, C = Anti-slip in barefoot areas
= Wear resistance group (EN ISO-10545-7)
= Surface seal

vilstoneplus
Porcelain stoneware
Notes
10/12 Shades and dimensions subject to the usual tolerances. We reserve the right to make technical modifications to the range and alter colours.