

SWIMMING POOL CONSTRUCTION



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



Olympic training center, Saarbrücken · Photo: Johannes-Maria Schlorke · Tile range: PRO ARCHITECTURA



Swimming pool construction



Aquapark Bruntál, Czech Republic



„Schwimmoper“ indoor swimming pool in Wuppertal, pbr Planungsbüro Rohling AG



LANDIDYLL Hotel "Michels", Schalkenmehren



„Fron Badeland“, Norway · Photo: www.imagephoto.no

Fundamentals of swimming pool construction

Defining the modular dimensions



"das blau", St. Ingbert · Planner: Berwanger architects, St. Wendel

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

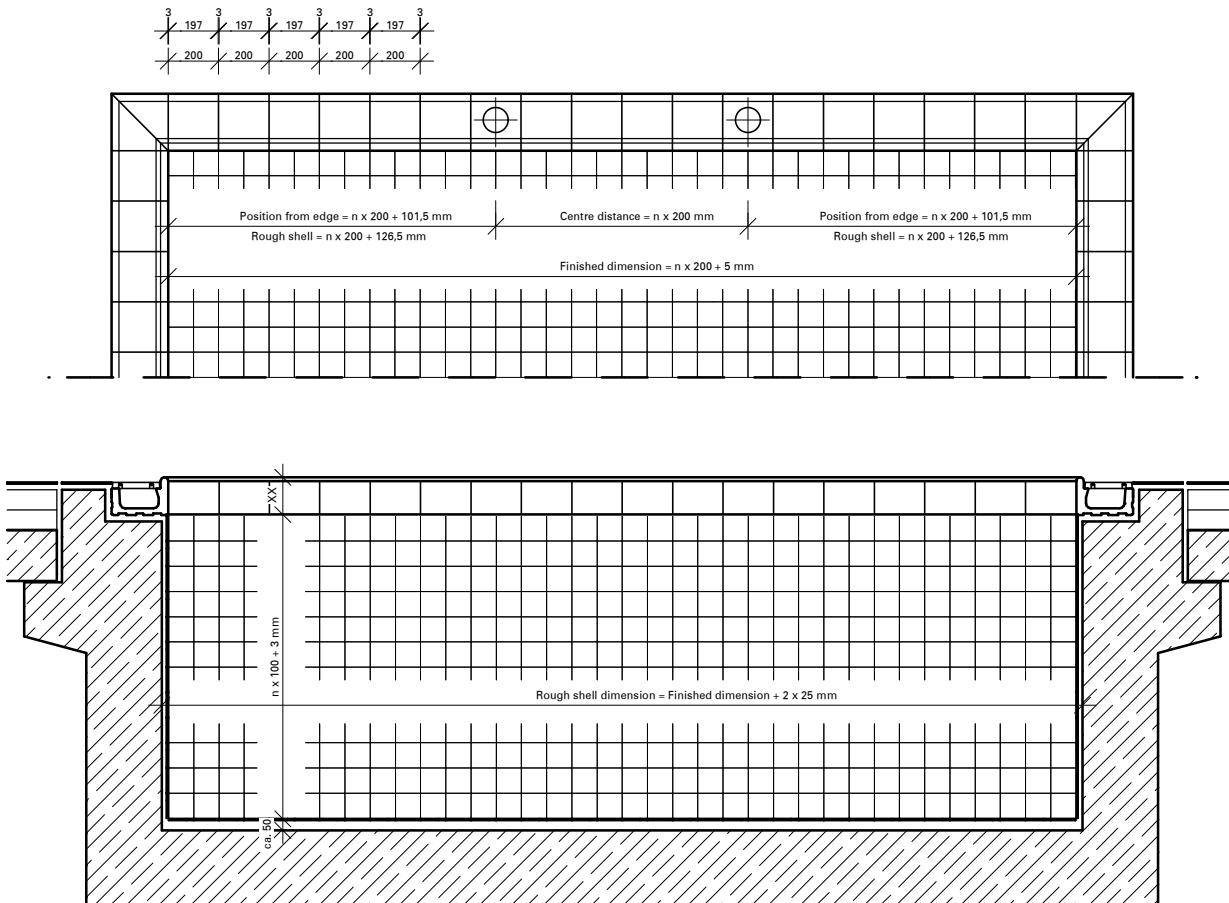
D-66663 Merzig

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 = $n \times 200 \text{ mm} + 3 \text{ mm}$
- The rough shell length is calculated as follows: Rough shell length = finished length + $2 \times$ 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 = $n \times 200 \text{ mm} + 101.5 \text{ mm}$
- The axial spacing of the drains is:
centre distance = $n \times 200 \text{ mm}$
- The pool depth is calculated by:
depth = height of trim + $n \times 100 \text{ mm} + 5 \text{ mm}$
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 following drawings were produced by the company V&B Fliesen GmbH. The user is responsible for verifying the correctness and suitability of the variant concerned. V&B Fliesen GmbH provides no guarantee and shall not be held liable in this connection.

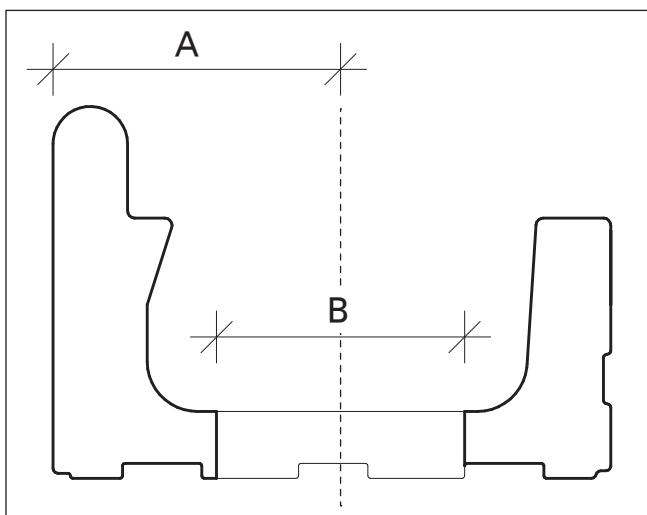
Fundamentals of swimming pool construction

Drains

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.

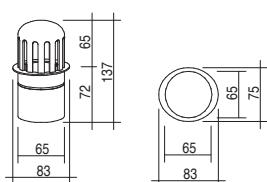


Drain dimensions in mm

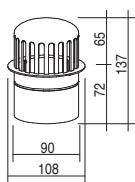
Art.	A	B	C
3031	115	110	86
3061	75	90	75
3091	155	110	86
3071	125	110	86

Special note:

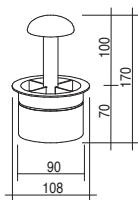
Outlet connectors and whispering drains must be ordered separately.



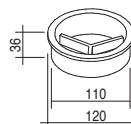
Art. 3962
Whispering drain Ø 65 mm
Flange Ø 83 mm
Plastic, grey



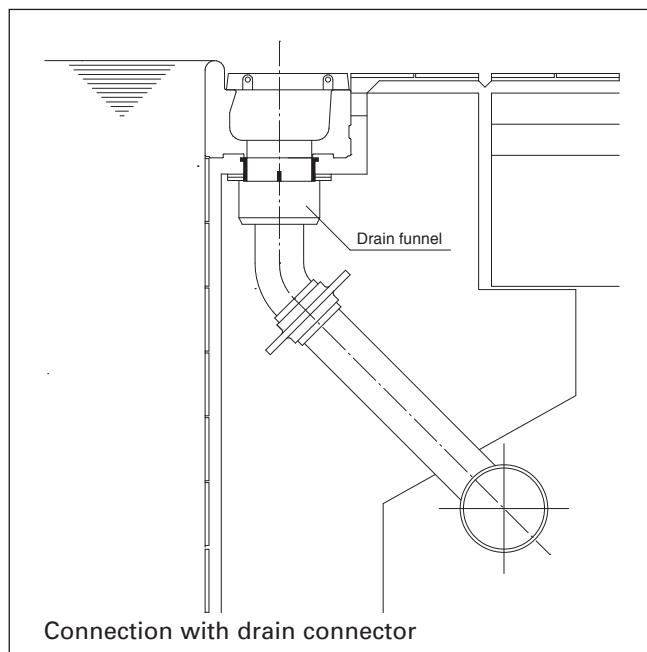
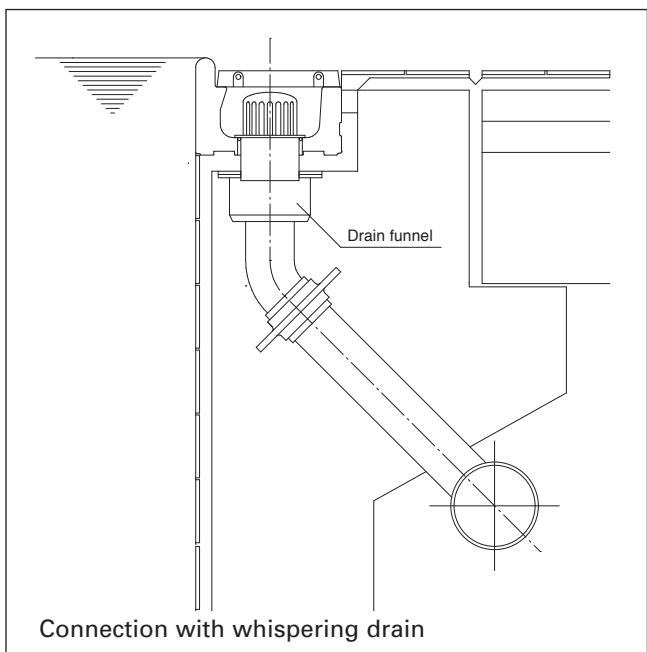
Art. 3972
Whispering drain Ø 90 mm
Flange Ø 108 mm
Plastic, white



Art. 3963
Whispering drain Ø 90 mm
Flange Ø 108 mm
Plastic, white

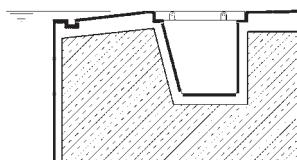


Art. 3952
Drain connector
Ø 100 mm
Plastic, yellow



Overview of pool edge systems

High water level



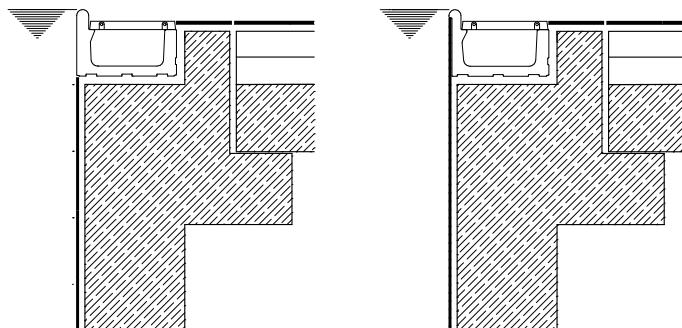
Finnish "Pyrmont" system

Art. 3010, Art. 3014, Art. 3600
Uses (preferable):
Outdoor, recreation,
sport and teaching pools

				Article number	Material	PN00	PN13	PN55	PN56	PN57	PN58	page
„Finnish“ overflow system: "Pyrmont" & "St.Moritz"												
	Grip trough	Art. 3010	Glazed vitreous				•	•	•	•	•	18
	Grip trough with outlet	Art. 3011	Glazed vitreous				•	•	•	•	•	18
	Inside corner	Art. 3012	Glazed vitreous				•	•	•	•	•	18
	Outside corner	Art. 3013	Glazed vitreous				•	•	•	•	•	18
	Grating support	Art. 3014	Glazed vitreous		•	•						18
	Inside corner	Art. 3015	Glazed vitreous		•	•						18
	Outside corner	Art. 3016	Glazed vitreous		•	•						18
	Angle grating support	Art. 3017	Glazed vitreous		•							18
	Edge tile	Art. 3050	Glazed vitreous				•	•	•	•	•	30
	Inside corner	Art. 3051	Glazed vitreous				•	•	•	•	•	30
	Outside corner	Art. 3052	Glazed vitreous				•	•	•	•	•	30
	Channel piece	Art. 3600	Glazed vitreous		•							18
	Channel piece with outlet	Art. 3601	Glazed vitreous		•							18
	Channel piece, half length	Art. 3602	Glazed vitreous		•							18
	Inside corner	Art. 3604	Glazed vitreous		•							18
	Outside corner	Art. 3605	Glazed vitreous		•							18
Pool edge												
	Ladder	Art. 3055	Glazed vitreous		•	•						31

Overview of pool edge systems

High water level



"Wiesbaden" system

Art. 3670, Art. 3690, Art. 3680

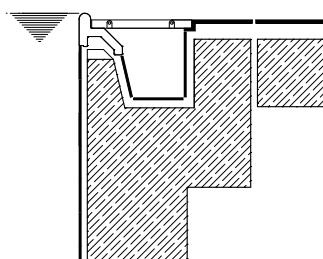
Uses (preferable):
Indoor, outdoor, recreation,
fun and hotel pools

System trim	Article number	Material	PRO ARCHITECTURA-colours				page
			PN00	PN04	PN12	PN13	
"Wiesbaden" small overflow channel							
	Channel piece	Art. 3670	Glazed vitreous	•	•	•	•
	Channel piece with outlet	Art. 3671	Glazed vitreous	•	•	•	•
	Channel piece, half length	Art. 3672	Glazed vitreous	•	•	•	•
	Inside corner	Art. 3674	Glazed vitreous	•	•	•	•
	Outside corner	Art. 3675	Glazed vitreous	•	•	•	•
	Channel piece, left end tile	Art. 3676	Glazed vitreous	•	•	•	•
	Channel piece, right end tile	Art. 3677	Glazed vitreous	•	•	•	•
"Wiesbaden" large overflow channel							
	Channel piece	Art. 3690	Glazed vitreous	•	•	•	•
	Channel piece with outlet	Art. 3691	Glazed vitreous	•	•	•	•
	Channel piece, half length	Art. 3692	Glazed vitreous	•	•	•	•
	Inside corner	Art. 3694	Glazed vitreous	•	•	•	•
	Outside corner	Art. 3695	Glazed vitreous	•	•	•	•
	Channel piece, left end tile	Art. 3696	Glazed vitreous	•	•	•	•
	Channel piece, right end tile	Art. 3697	Glazed vitreous	•	•	•	•

Overview of pool edge systems

High water level

System trim	Article number	Material	PRO ARCHITECTURA-colours				page
			PN00	PN04	PN12	PN13	
"Wiesbaden" large overflow channel with mosaic recess							
	Channel piece	Art. 3680	Glazed vitreous	•	•	•	•
	Channel piece with outlet	Art. 3681	Glazed vitreous	•	•	•	•
	Channel piece half length	Art. 3682	Glazed vitreous	•	•	•	•
	Inside corner	Art. 3694	Glazed vitreous	•	•	•	•
	Outside corner	Art. 3685	Glazed vitreous	•	•	•	•



"Berlin" overflow channel

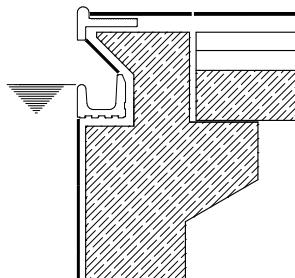
Art. 3540
Uses (preferable):
Indoor, outdoor, recreation,
fun and hotel pools

"Berlin" overflow channel							
	Pool running edge	Art. 3540	Glazed vitreous	•	•	•	•
	Pool running edge, half length	Art. 3542	Glazed vitreous	•	•	•	•
	Inside corner	Art. 3544	Glazed vitreous	•	•	•	•
	Outside corner	Art. 3545	Glazed vitreous	•	•	•	•

Accessories							
	Whispering drain	Art. 3972	Plastic, white				10
	Drain connector	Art. 3952	Plastic, yellow				10
	Whispering drain	Art. 3963	Plastic, white				10

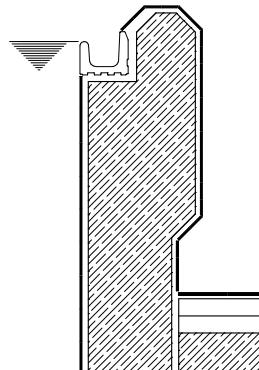
Overview of pool edge systems

Low water level



"Wiesbaden" system

Art. 3660, Art. 3630
Uses (preferable):
Indoor, outdoor
and therapy pools



"Therapy" system

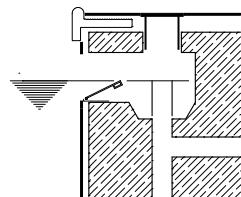
Art. 3660
Uses (preferable):
Therapy pools

System trim	Article number	Material	PRO ARCHITECTURA-colours				page
			PN00	PN04	PN12	PN13	
"Wiesbaden" small overflow channel & "Therapy" system							
	Channel piece	Art. 3660	Glazed vitreous	•	•	•	•
	Channel piece with outlet	Art. 3661	Glazed vitreous	•	•	•	•
	Channel piece, half length	Art. 3662	Glazed vitreous	•	•	•	•
	Inside corner	Art. 3664	Glazed vitreous	•	•	•	•
	Outside corner	Art. 3665	Glazed vitreous	•	•	•	•
	Channel piece, left end tile	Art. 3666	Glazed vitreous	•	•	•	•
	Channel piece, right end tile	Art. 3667	Glazed vitreous	•	•	•	•
"Wiesbaden" large overflow channel & "Therapy" system							
	Channel piece	Art. 3630	Glazed vitreous	•	•	•	•
	Channel piece with outlet	Art. 3631	Glazed vitreous	•	•	•	•
	Channel piece, half length	Art. 3632	Glazed vitreous	•	•	•	•
	Inside corner	Art. 3634	Glazed vitreous	•	•	•	•
	Outside corner	Art. 3635	Glazed vitreous	•	•	•	•
	Channel piece, left end tile	Art. 3636	Glazed vitreous	•	•	•	•
	Channel piece, right end tile	Art. 3637	Glazed vitreous	•	•	•	•

Overview of pool edge systems

Low water level

<i>System trim</i>	<i>Article number</i>	<i>Material</i>	<i>page</i>
Accessories			
	Whispering drain	Art. 3962	Plastic, white 10
	Whispering drain	Art. 3963	Plastic, white 10
	Whispering drain	Art. 3972	Plastic, white 10
	Drain connector	Art. 3952	Plastic, yellow 10



"Skimmer" system

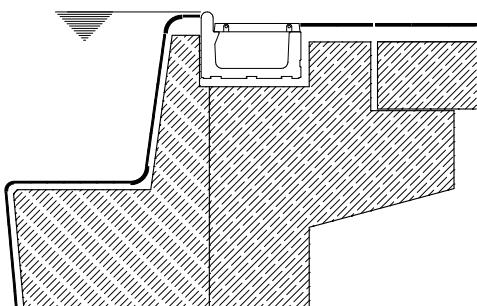
Art. 3650
Uses (preferable):
Private pools

PRO ARCHITECTURA-colours
PN00 PN04 PN12 PN13 PN31

Pool running edge												
	Pool running edge	Art. 3650	Glazed vitreous	•	•	•	•	•	•	•	•	26
	Pool running edge, half length	Art. 3652	Glazed vitreous	•	•	•	•	•	•	•	•	26
	Inside corner	Art. 3654	Glazed vitreous	•	•	•	•	•	•	•	•	26
	Outside corner	Art. 3655	Glazed vitreous	•	•	•	•	•	•	•	•	26

Overview of pool edge systems

Curved and cove base ceramic beading



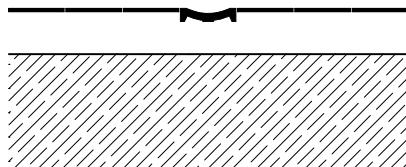
Curved and cove base ceramic beading

Art. 3120, Art. 3160
Uses (preferable):
Indoor, outdoor, recreation,
fun and hotel pools

System trim	Article number	Material	PRO ARCHITECTURA-colours				page
			PN00	PN04	PN12	PN13	
Small curved ceramic beading							
	Curved ceramic beading Art. 3121 r=30	Glazed vitreous	•	•	•	•	32
	Curved ceramic beading Art. 3122 r=30, half length	Glazed vitreous	•	•	•	•	32
	Curved ceramic beading Art. 3124 Outside corner	Glazed vitreous	•	•	•	•	32
	Curved ceramic beading Art. 3125 Inside corner	Glazed vitreous	•	•	•	•	32
Small cove base ceramic beading							
	Cove base ceramic beading Art. 3120 r=20	Glazed vitreous	•	•	•	•	32
	Cove base ceramic beading Art. 3123 Outside corner	Glazed vitreous	•	•	•	•	32
	Cove base ceramic beading Art. 3126 Inside corner	Glazed vitreous	•	•	•	•	32
Large curved ceramic beading							
	Curved ceramic beading Art. 3161 r=55	Glazed vitreous	•	•	•	•	32
	Curved ceramic beading Art. 3162 r=55, half length	Glazed vitreous	•	•	•	•	32
	Curved ceramic beading Art. 3164 Outside corner	Glazed vitreous	•	•	•	•	32
	Curved ceramic beading Art. 3165 Inside corner	Glazed vitreous	•	•	•	•	32
Large cove base ceramic beading							
	Cove base ceramic beading Art. 3160 r=45	Glazed vitreous	•	•	•	•	32
	Cove base ceramic beading Art. 3163 Outside corner	Glazed vitreous	•	•	•	•	32
	Cove base ceramic beading Art. 3166 Inside corner	Glazed vitreous	•	•	•	•	32

Overview of pool edge systems

Channel in the pool rim



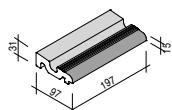
Channel in the pool rim

Art. 3620
Uses (preferable):
Drainage channels, pool rims

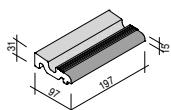
System trim	Article number	Material	PRO ARCHITECTURA-colours				page	
			PN00	PN09	PN12	PN31		
Ceramic channel in the pool rim								
	Channel piece	Art. 3620	Glazed vitreous	•	•	•	•	34
	Channel piece with outlet	Art. 3621	Glazed vitreous	•	•	•	•	34
	Channel piece, half length	Art. 3622	Glazed vitreous	•	•	•	•	34
	Inside corner/Outside corner	Art. 3624	Glazed vitreous	•	•	•	•	34
	End piece	Art. 3626	Glazed vitreous	•	•	•	•	34

Pool edge systems in detail

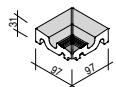
High water level/"Finnish" overflow system



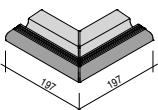
Art. 3010
Grip trough
PN55, PN56, PN57, PN58



Art. 3011
Grip trough with outlet
PN55, PN56, PN57, PN58



Art. 3012
Inside corner
PN55, PN56, PN57, PN58



Art. 3013
Outside corner
PN55, PN56, PN57, PN58

Applications
Material
Actual size
Joints approx.
Surface
Finish
Glaze
Packing
Calculation unit

Pool edge - indoors / outdoors
Glazed / unglazed vitreous
see diagrams
3 mm
formed, rough
uni-coloured
matt
Piece
Piece

Matching wall tiles

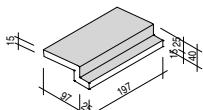
PRO ARCHITECTURA

Special points

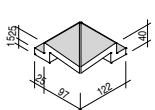
Underwater edges such as steps or the front edge of the "Finnish" system must be accentuated with a stripe of a different colour (PN04, PN12). Depending on requirements, the following colour combinations are available:
PN55 = PN04 + PN13 (dark blue and aquamarine)
PN56 = PN12 + PN13 (black and aquamarine)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

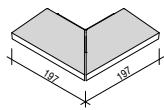
- The pool edge must offer something to hold onto (grip).
- The grip must be 15 mm high/deep.
- The grip must be situated within 100 mm of the vertical wall of the pool.
- The rear side of the grip should be as vertical as possible.
- The top of the grip must be accentuated by means of a stripe of contrasting 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.



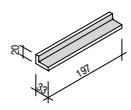
Art. 3014
Grating support
PN00, PN13



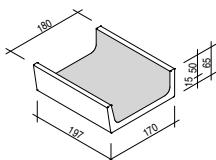
Art. 3015
Inside corner
PN00, PN13



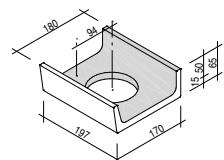
Art. 3016
Outside corner
PN00, PN13



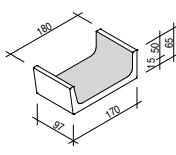
Art. 3017
Angle grating support
PN00



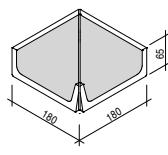
Art. 3600
Channel piece
PN00



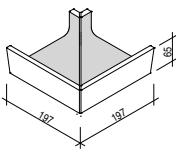
Art. 3601
Channel piece
with outlet
PN00



Art. 3602
Channel piece,
half length
PN00



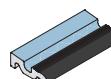
Art. 3604
Inside corner
PN00



Art. 3605
Outside corner
PN00



PN55
= PN04 dark blue
+ PN13 aquamarine



PN56
= PN12 black
+ PN13 aquamarine



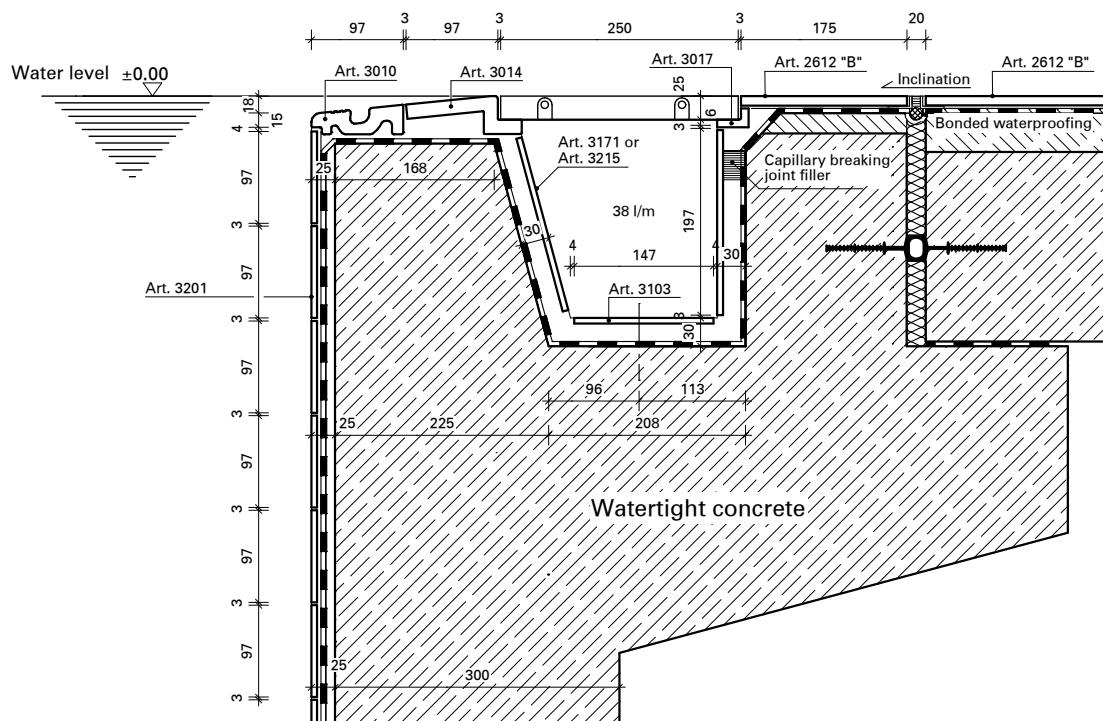
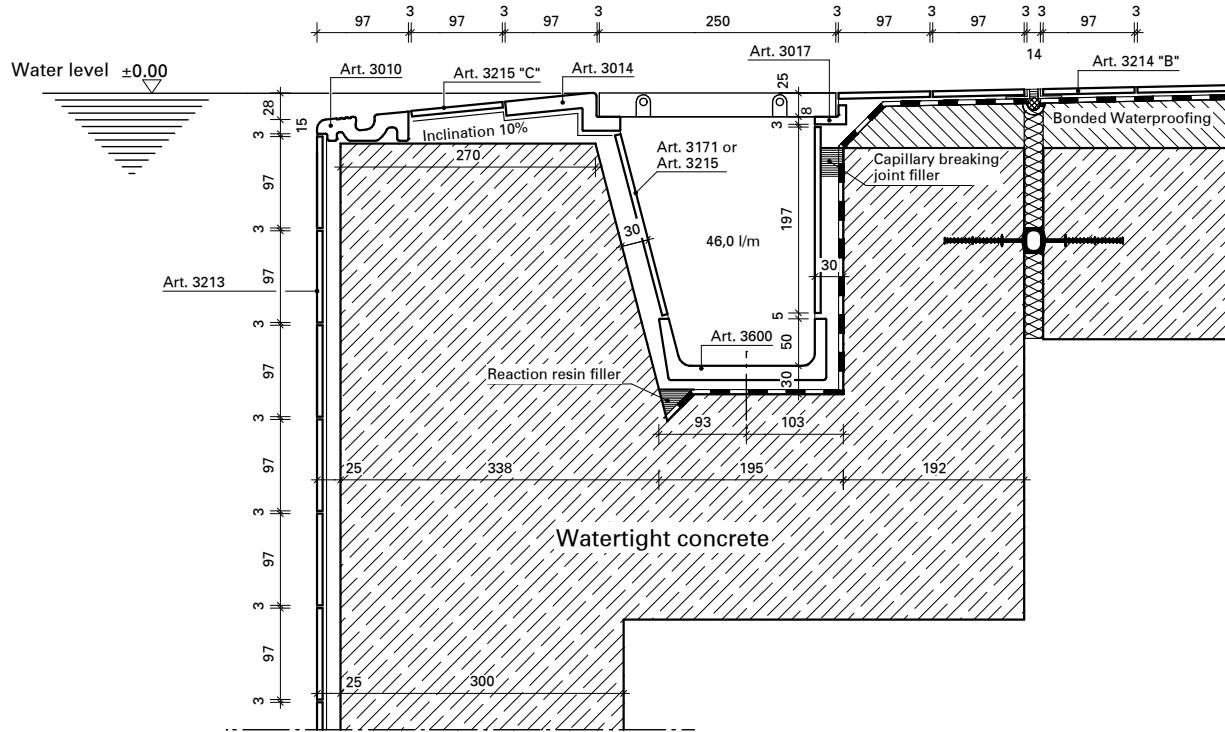
PN57
= PN00 white
+ PN12 black



PN58
= PN00 white
+ PN04 dark blue

Pool edge systems in detail

High water level/“Finnish” overflow system

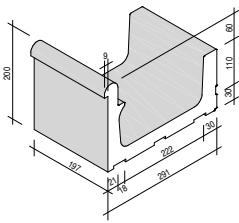


High water level - overflow channel with moulded trims

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

Pool edge systems in detail

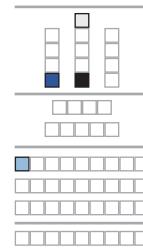
High water level/Large overflow channel „Wiesbaden“ with mosaik recess



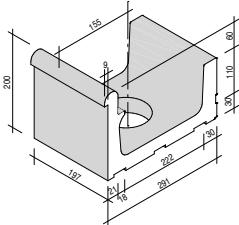
Art. 3680
Channel piece
PN00, PN04, PN12, PN13

Applications Pool edge - indoors / outdoors

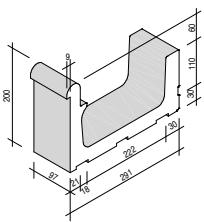
Material Glazed / unglazed vitreous
Actual size see diagrams
Joints approx. 3 mm
Surface formed
Finish uni-coloured
Glaze matt
Packing Piece
Calculation unit Piece



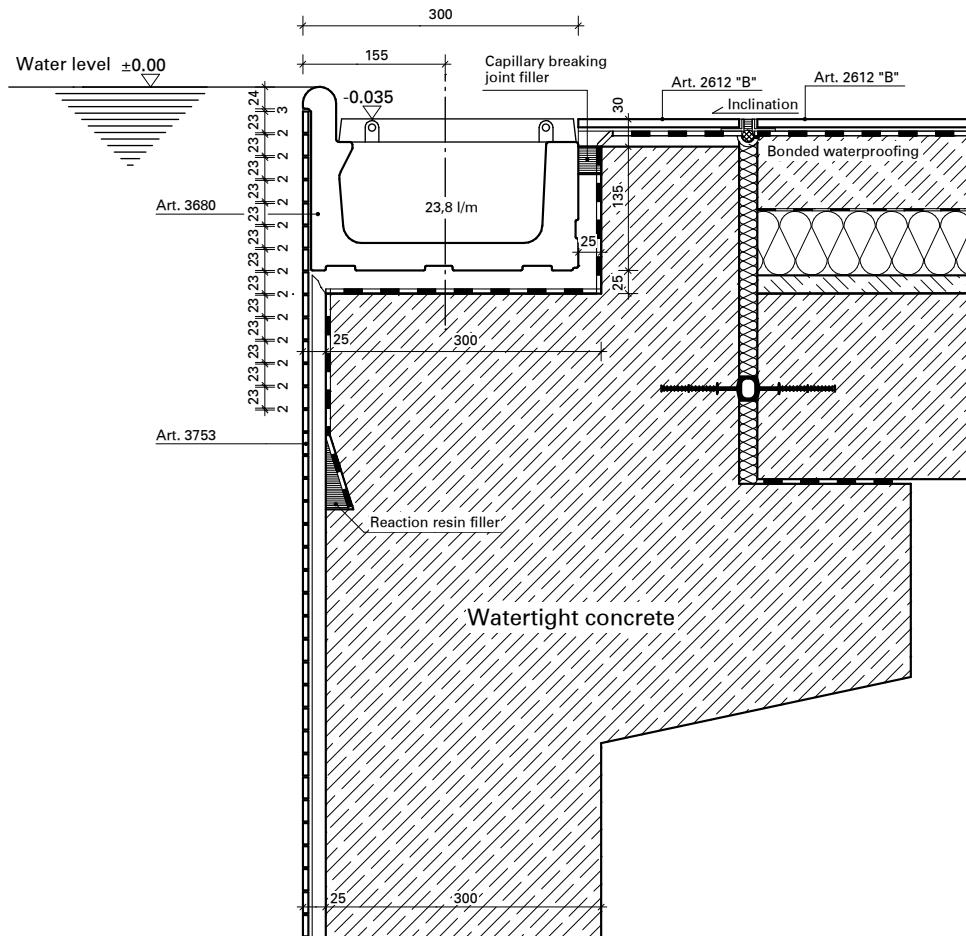
Matching wall tiles PRO ARCHITECTURA



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

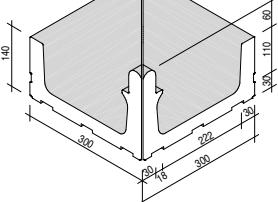


Art. 3682
Channel piece, half length
PN00, PN04, PN12, PN13

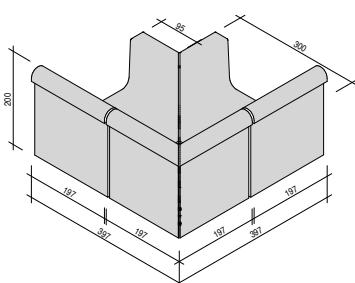


High water level – overflow channel with moulded trims

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



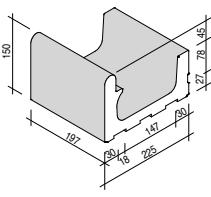
Art. 3694
Inside corner (Mitred pair)
PN00, PN04, PN12, PN13



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

Pool edge systems in detail

High water level/Small overflow channel "Wiesbaden"



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

Applications Pool edge - indoors / outdoors

Material Glazed / unglazed vitreous

Actual size see diagrams

Joints approx. 3 mm

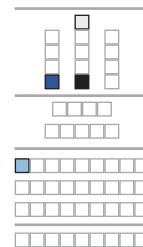
Surface formed

Finish uni-coloured

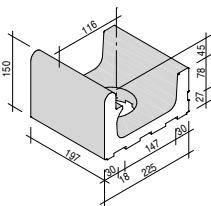
Glaze matt

Packing Piece

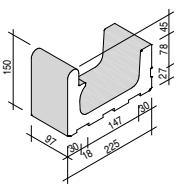
Calculation unit Piece



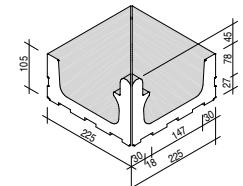
Matching wall tiles PRO ARCHITECTURA



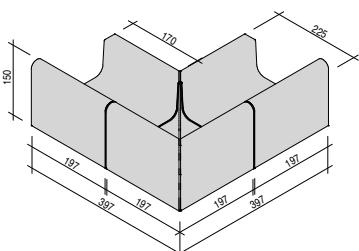
Art. 3671
Channel piece with outlet
PN00, PN04, PN12, PN13



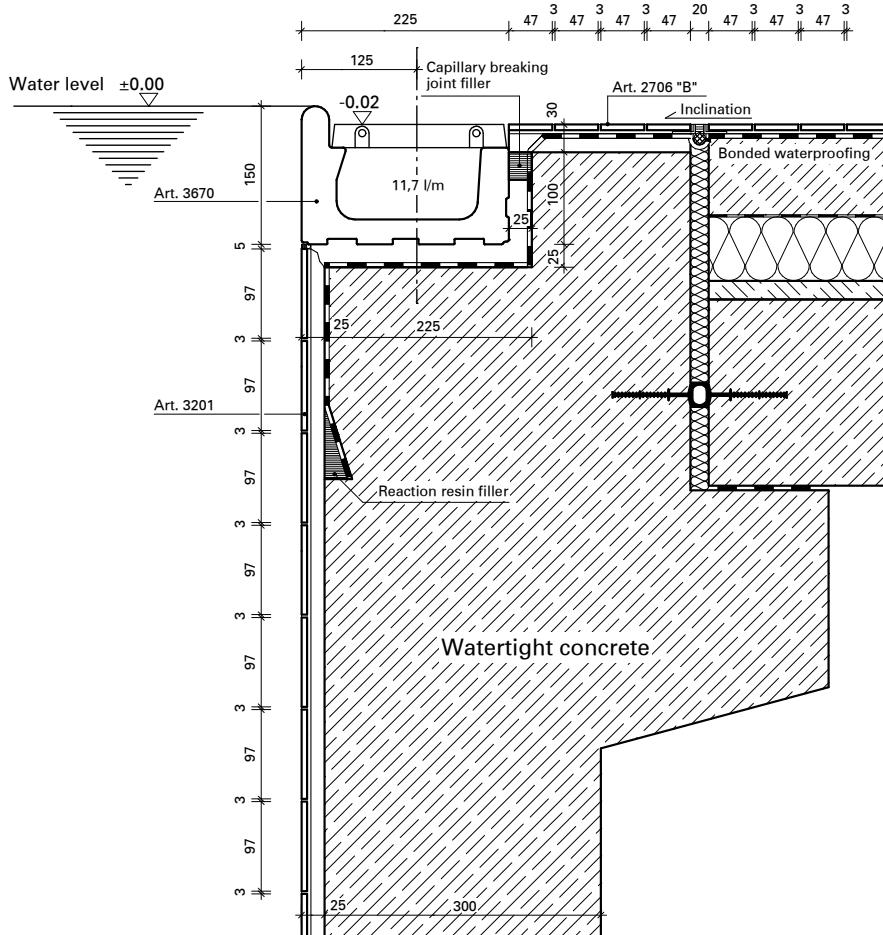
Art. 3672
Channel piece, half length
PN00, PN04, PN12, PN13



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



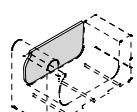
Art. 3675
Outside corner (Mitred pair, 4 part)
PN00, PN04, PN12, PN13



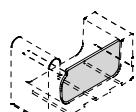
High water level – overflow channel with moulded trims

Uses (preferable):

Indoor, outdoor, recreation, fun and hotel pools



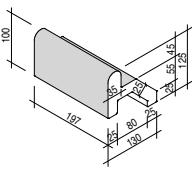
Art. 3676
Channel piece,
left end tile
PN00, PN04, PN12, PN13



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

Pool edge systems in detail

High water level/Overflow channel "Berlin"



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

Applications Pool edge - indoors / outdoors

Material Glazed / unglazed vitreous

Actual size see diagrams

Joints approx. 3 mm

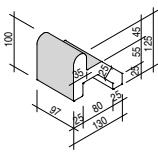
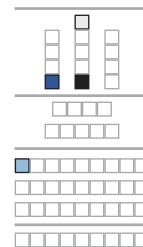
Surface form

Finish uni-coloured
Glaze matt

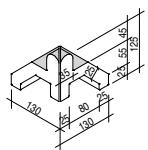
Glaze matt
Backing Piezo

Packing Piece Calculation unit Piece

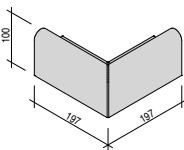
Calculation unit Piece



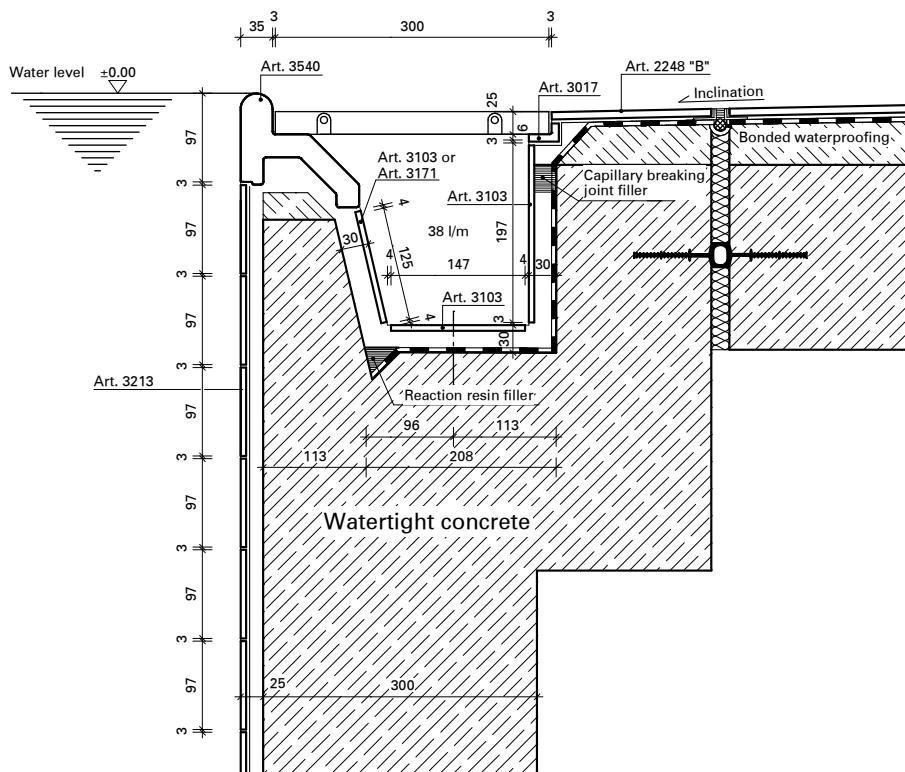
Art. 3542
Pool running edge, half length
PN00, PN04, PN12, PN13



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



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



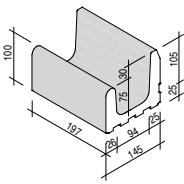
High water level – overflow channel with moulded trims

Uses (preferable):

Indoor, outdoor, recreation, fun and hotel pools

Pool edge systems in detail

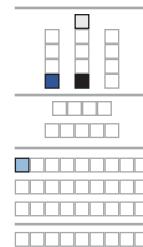
Low water level/Small overflow channel "Wiesbaden"



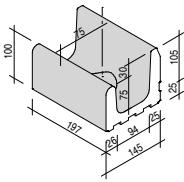
Art. 3660
Channel piece
PN00, PN04, PN12, PN13

Applications Pool edge - indoors / outdoors

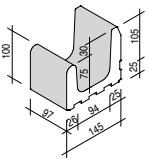
Material Glazed vitreous
Actual size see diagrams
Joints approx. 3 mm
Surface formed
Finish uni-coloured
Glaze matt
Packing Piece
Calculation unit Piece



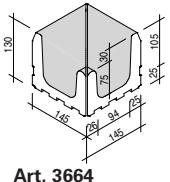
Matching wall tiles PRO ARCHITECTURA



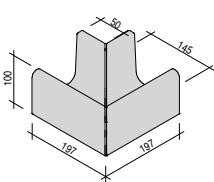
Art. 3661
Channel piece with outlet
PN00, PN04, PN12, PN13



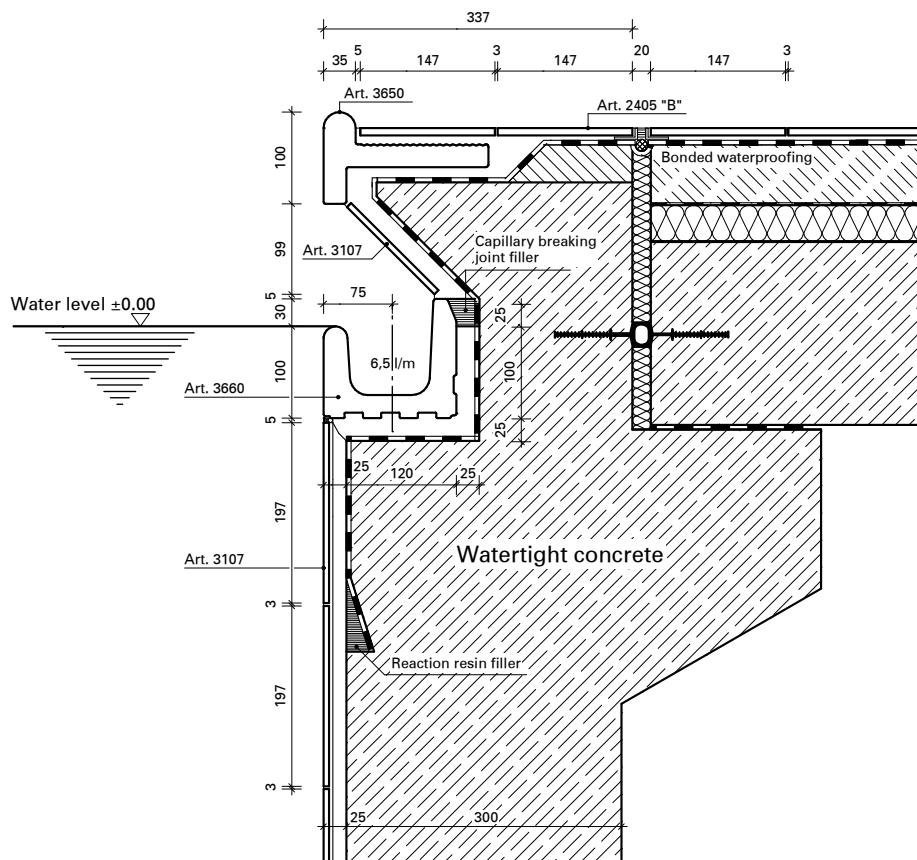
Art. 3662
Channel piece, half length
PN00, PN04, PN12, PN13



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

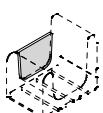


Art. 3665
Outside corner (Mitred pair)
PN00, PN04, PN12, PN13

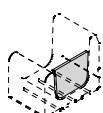


Low water level – overflow channel with moulded trims

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



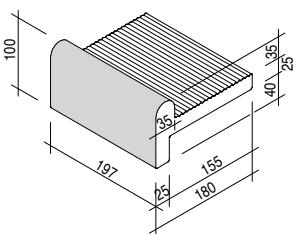
Art. 3666
Channel piece,
left end tile
PN00, PN04, PN12, PN13



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

Pool edge systems in detail

Low water level | Pool edge piece



Art. 3650
Pool running edge
PN00, PN04, PN12, PN13, PN31

Applications Pool edge - indoors / outdoors

Material Glazed / unglazed vitreous

Actual size see diagrams

Joints approx. 3 mm

Surface formed

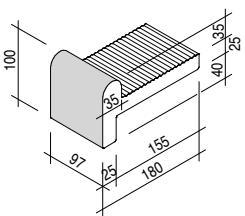
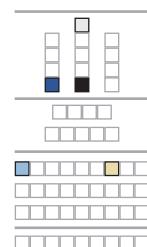
Finish uni-coloured

Glaze matt

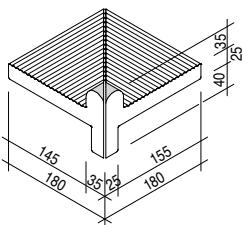
Packing Piece

Calculation unit Piece

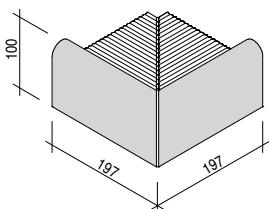
Matching wall tiles PRO ARCHITECTURA



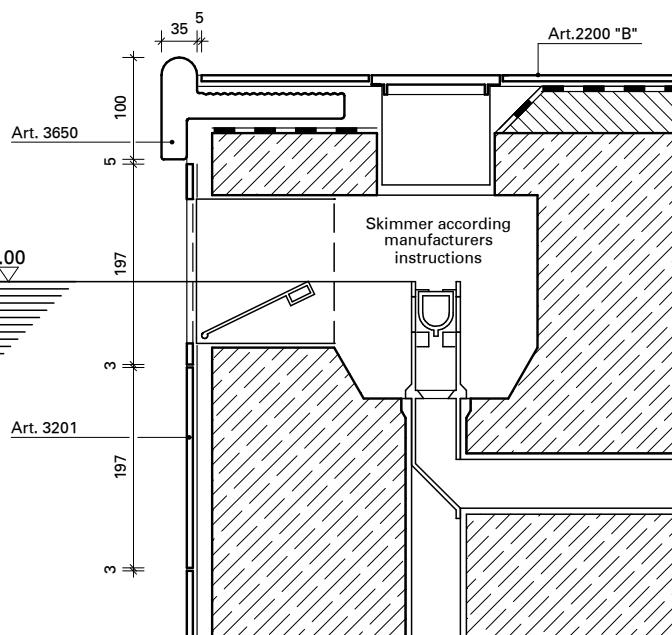
Art. 3652
Pool running edge, half length
PN00, PN04, PN12, PN13, PN31



Art. 3654
Inside corner (Mitred pair)
PN00, PN04, PN12, PN13, PN31



Art. 3655
Outside corner (Mitred pair)
PN00, PN04, PN12, PN13, PN31



Low water level – "Skimmer" system

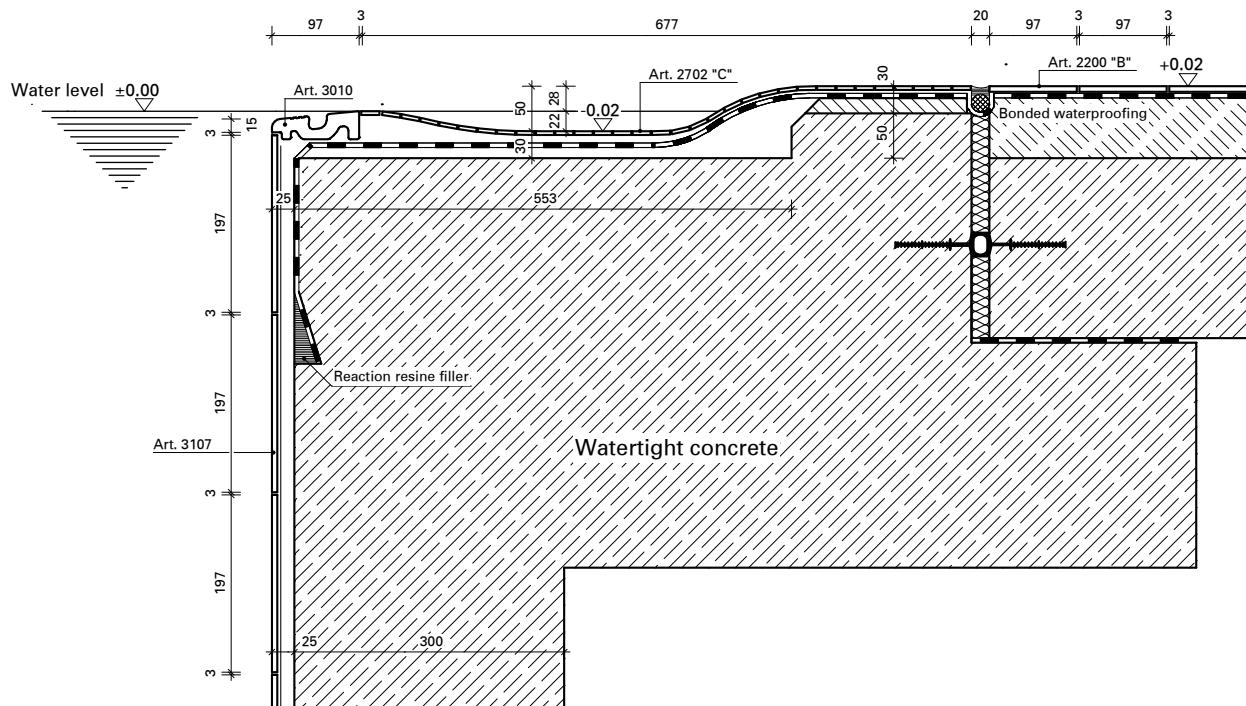
Uses (preferable):
Private pools

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.

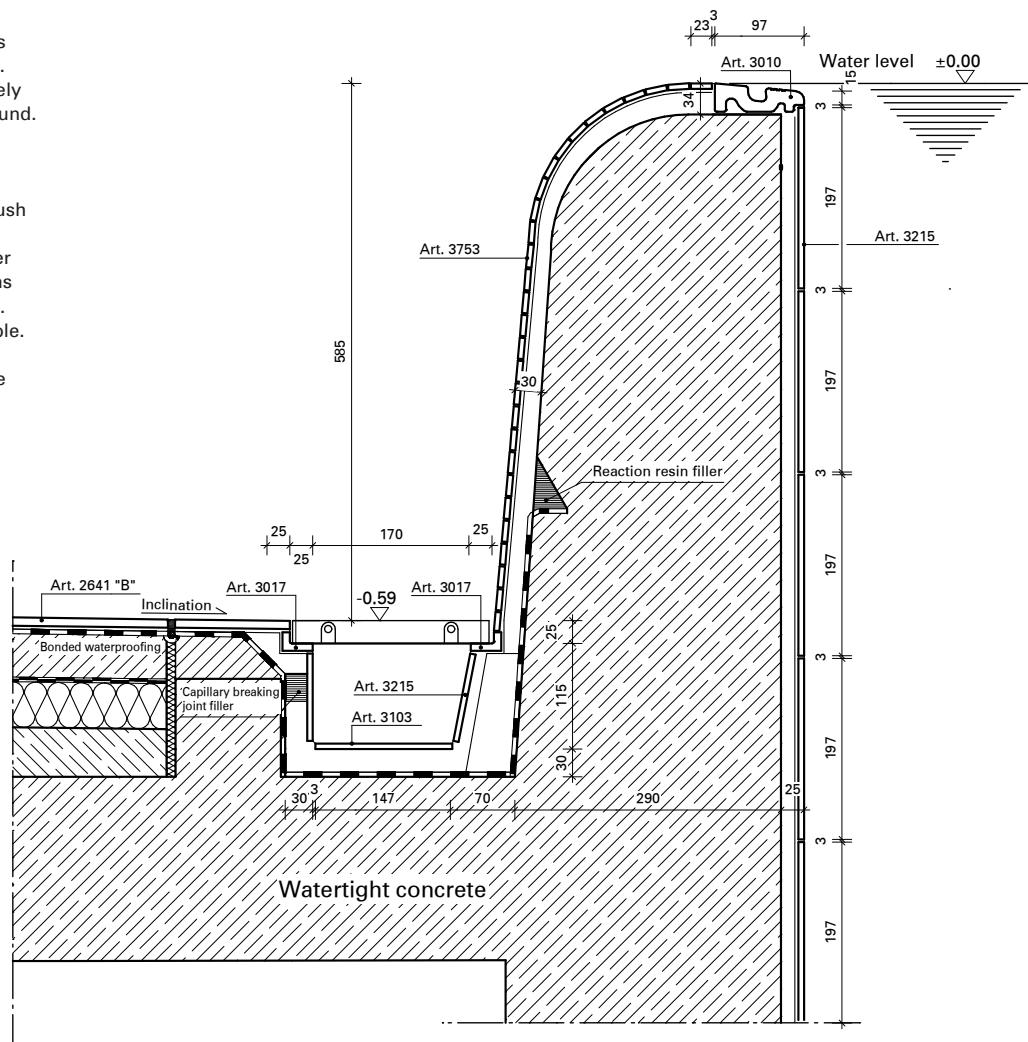
Pool edge systems in detail

High water level/“Finnish” overflow system - Open channel



High water level/“St. Moritz” system

- 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.



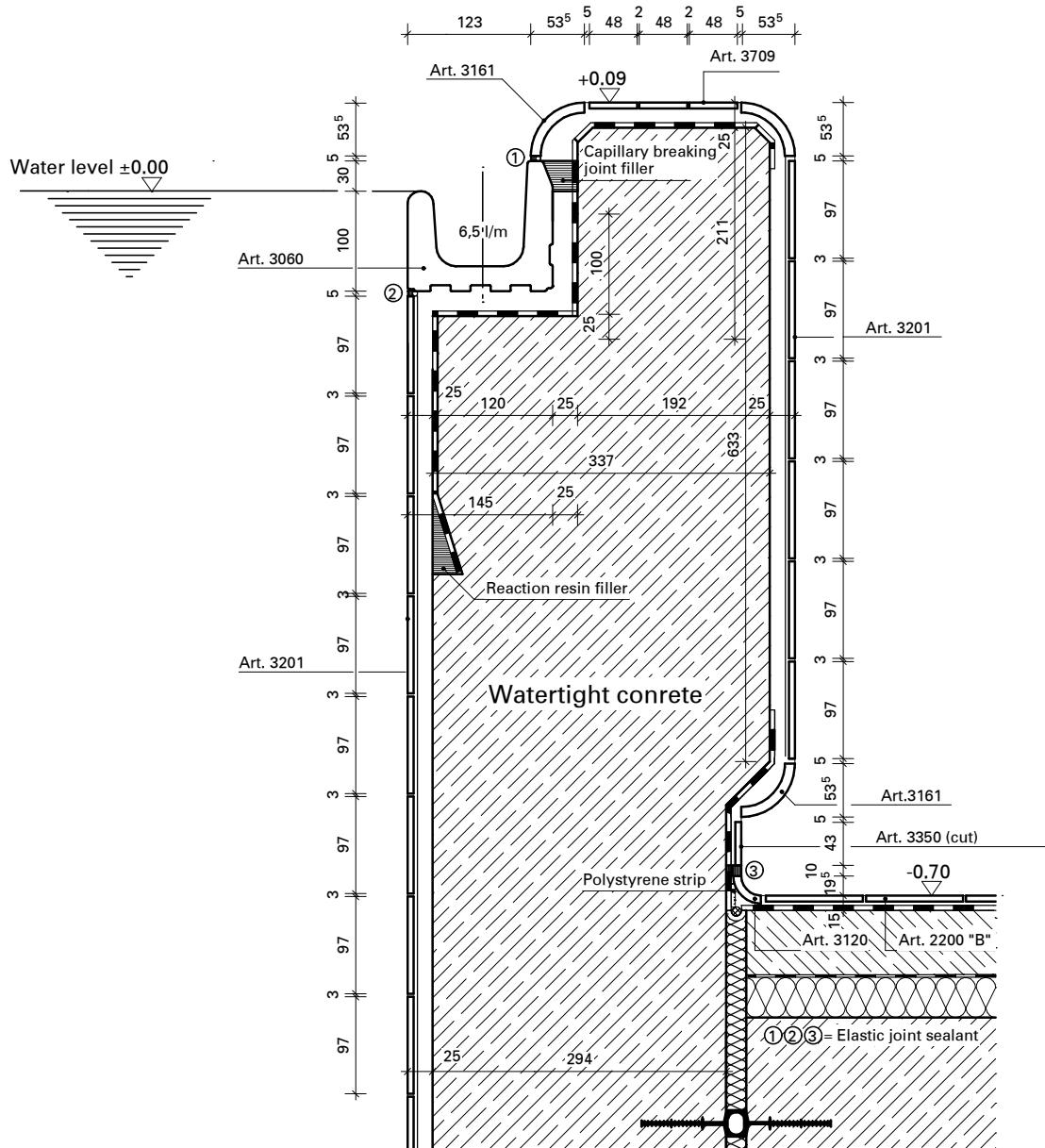
Special designs

Therapy pools

In Germany, the design and construction of medicinal baths is subject to the following basic rules:

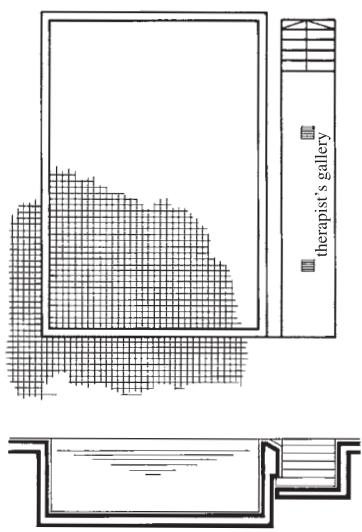
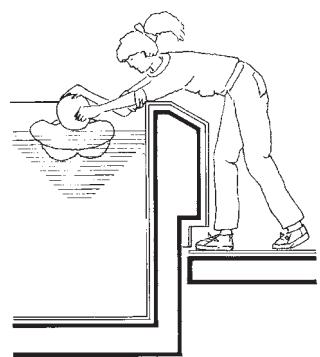
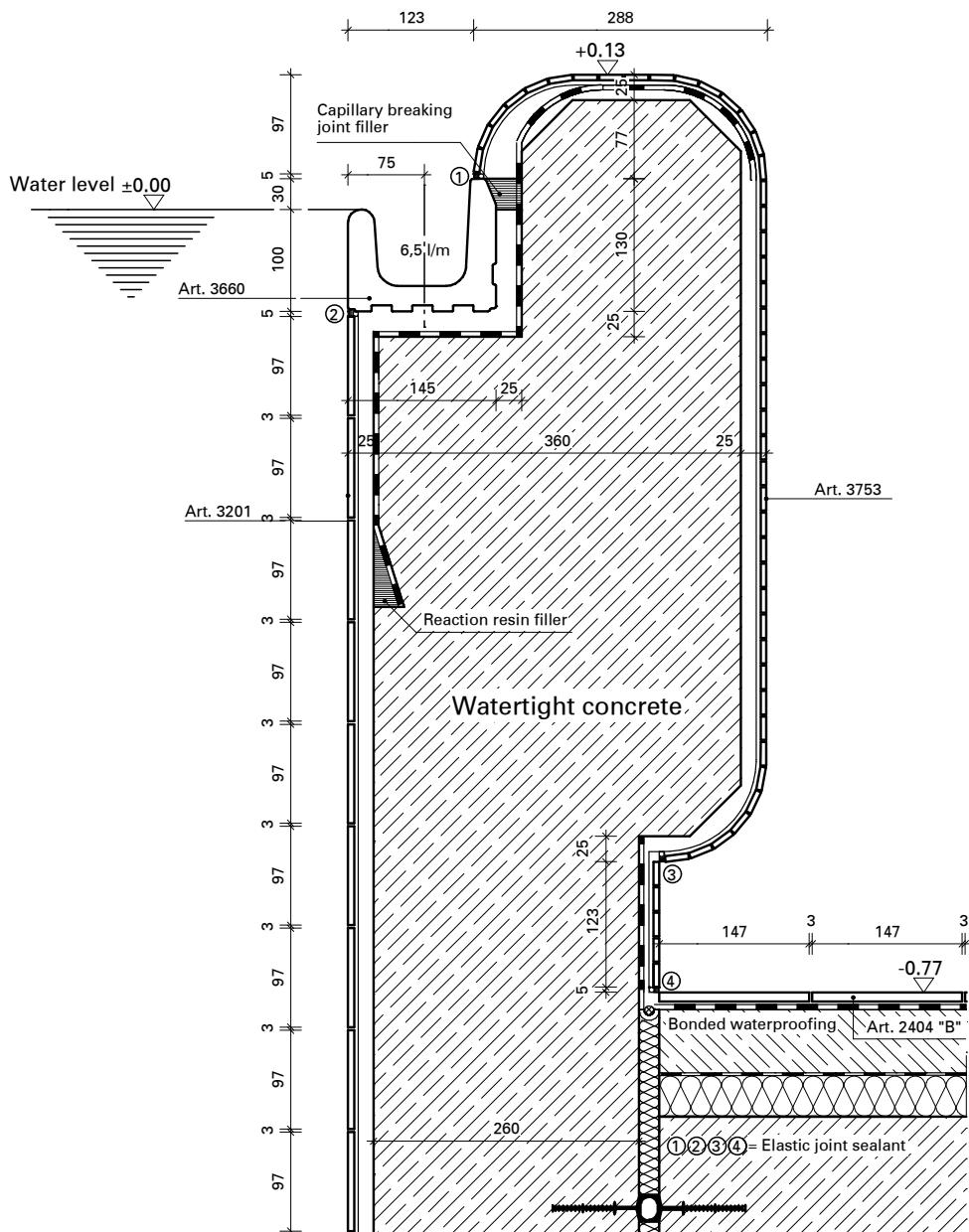
- The minimum dimensions for therapy pools are 3 x 4 m.
- The minimum water depth is 0.5 m for children and 0.8 m for adults.
- The maximum water depth is 1.35 m.
- The pool must have an overflow channel running along all its sides. Skimmers are not acceptable for hygienic reasons.
- The slope of the 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 %.



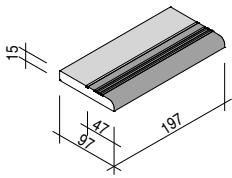
Special designs

Therapy pools



Pool edge systems in detail - Fixtures

Pool access steps



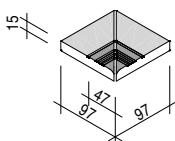
Art. 3050
Edge tile
PN55, PN56, PN57, PN58

Applications
Material
Actual size
Joints approx.
Surface
Finish
Glaze
Packing
Calculation unit

Pool edge - indoors / outdoors
Glazed / unglazed vitreous
see diagrams
3 mm
formed, rough
uni-coloured
matt
Piece
Piece

Matching wall tiles

PRO ARCHITECTURA



Art. 3051
Edge tile, inside corner
PN55, PN56, PN57, PN58

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).

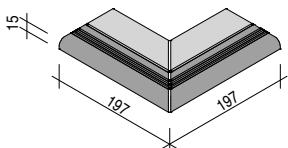
Depending on requirements, the following colour combinations are available:

PN55 = PN04 + PN13 (dark blue and aquamarine)

PN56 = PN12 + PN13 (black and aqua)

PN57 = PN00 + PN12 (white and black)

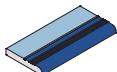
PN58 = PN00 + PN04 (white and dark blue)



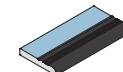
Art. 3052
Edge tile, outside corner
PN55, PN56, PN57, PN58

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.



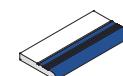
PN55
= PN04 *dark blue*
+ PN13 *aquamarine*



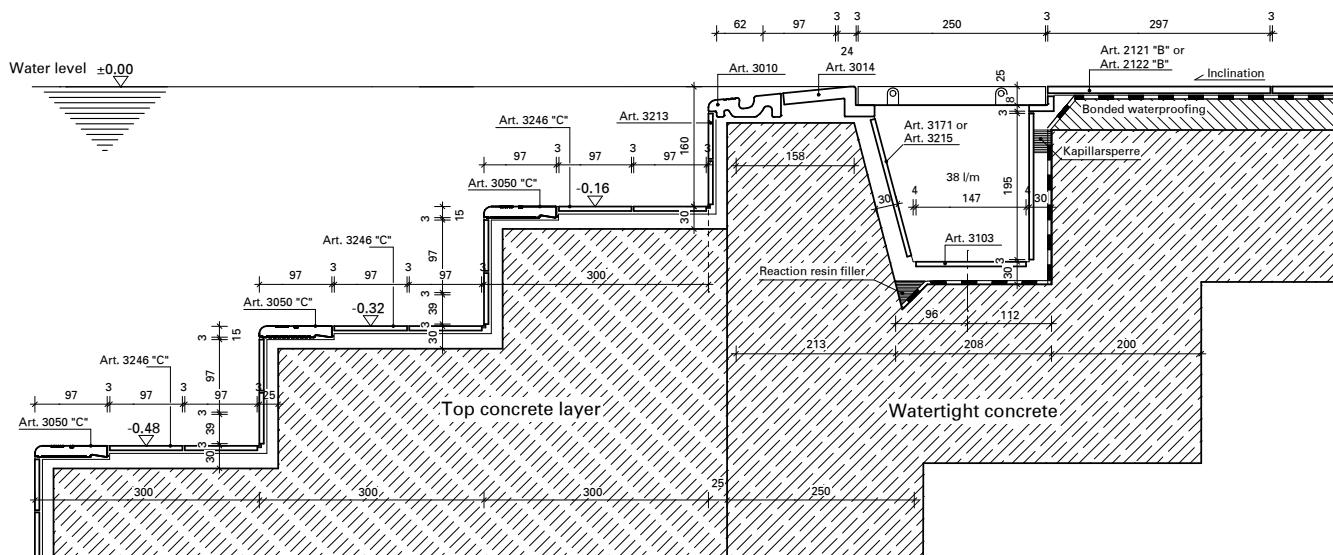
PN56
= PN12 *black*
+ PN13 *aquamarine*



PN57
= PN00 *white*

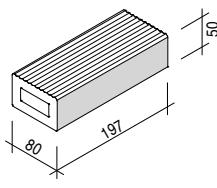


↓
PN58
= PN00 *white*
PN24 / / / /



Pool edge systems in detail - Fixtures

Ladder

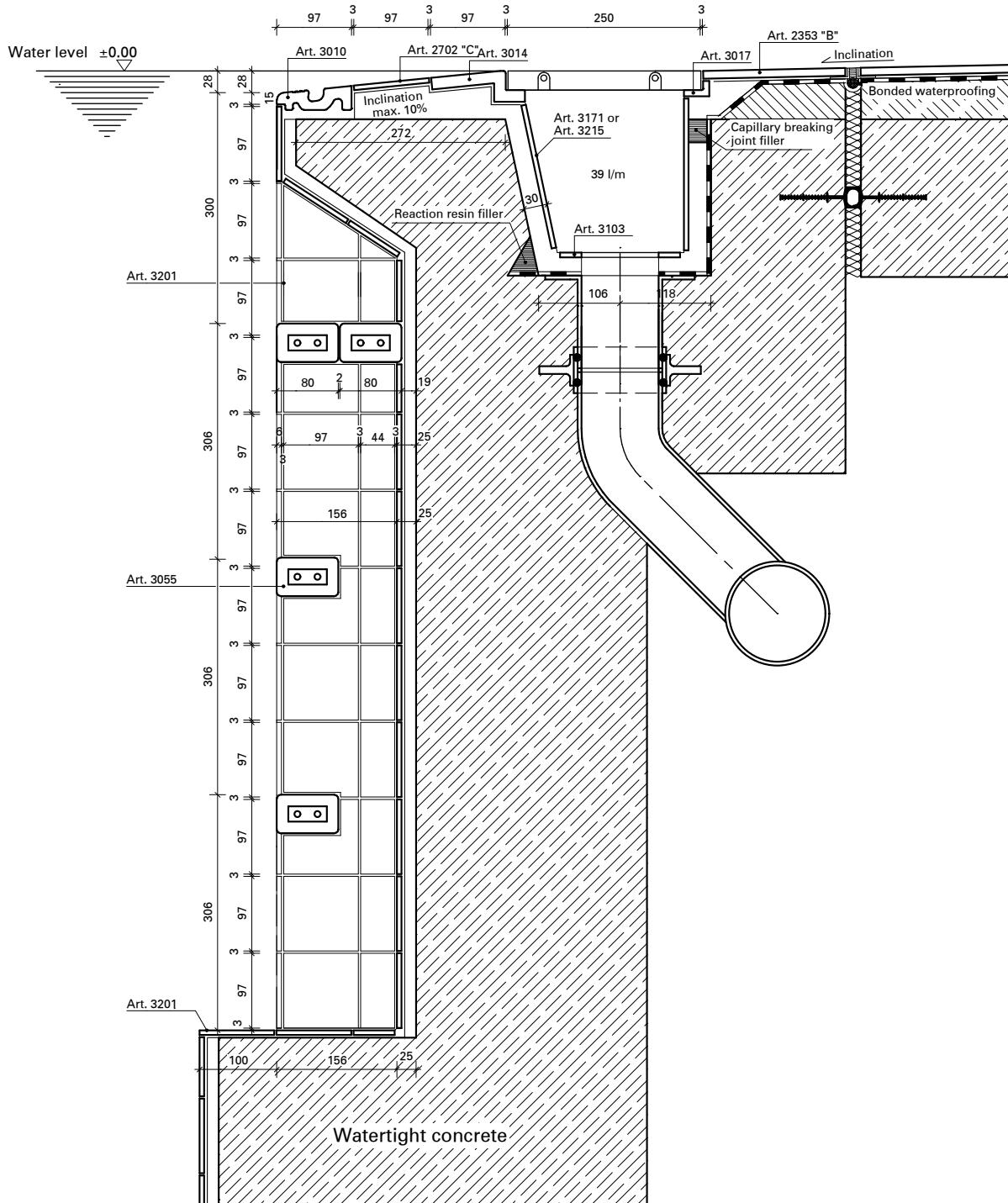
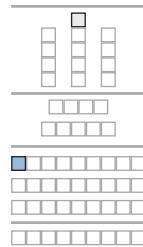


Art. 3055
Ladder

Applications Ladder - indoors / outdoors

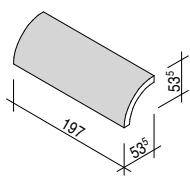
Material Glazed vitreous
Actual size see diagrams
Joints approx. 3 mm
Surface formed
Finish uni-coloured
Glaze matt
Packing Piece
Calculation unit Piece

Matching wall tiles PRO ARCHITECTURA

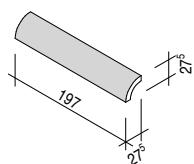


Pool edge systems in detail - Fixtures

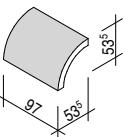
Curved and cove base ceramic beading



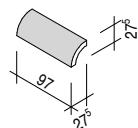
Art. 3161
Curved ceramic beading
 $r=55$
PN00, PN04, PN12, PN13



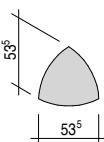
Art. 3121
Curved ceramic beading
 $r=30$
PN00, PN04, PN12, PN13



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



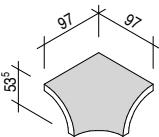
Art. 3122
Curved ceramic beading
 $r=30$, half length
PN00, PN04, PN12, PN13



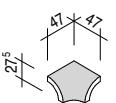
Art. 3164
Curved ceramic beading
Outside corner
PN00, PN04, PN12, PN13



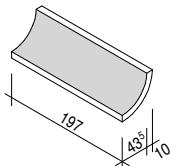
Art. 3124
Curved ceramic beading
Outside corner
PN00, PN04, PN12, PN13



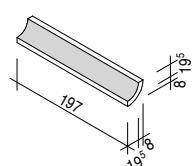
Art. 3165
Curved ceramic beading
Inside corner
PN00, PN04, PN12, PN13



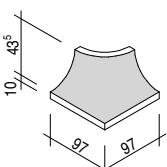
Art. 3125
Curved ceramic beading
Inside corner
PN00, PN04, PN12, PN13



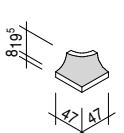
Art. 3160
Cove base ceramic beading
 $r=45$
PN00, PN04, PN12, PN13



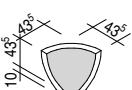
Art. 3120
Cove base ceramic beading
 $r=20$
PN00, PN04, PN12, PN13



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

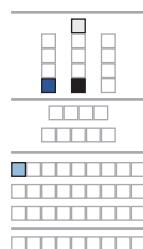


Art. 3126
Cove base ceramic beading
Inside corner
PN00, PN04, PN12, PN13

Applications Pool edge - indoors / outdoors

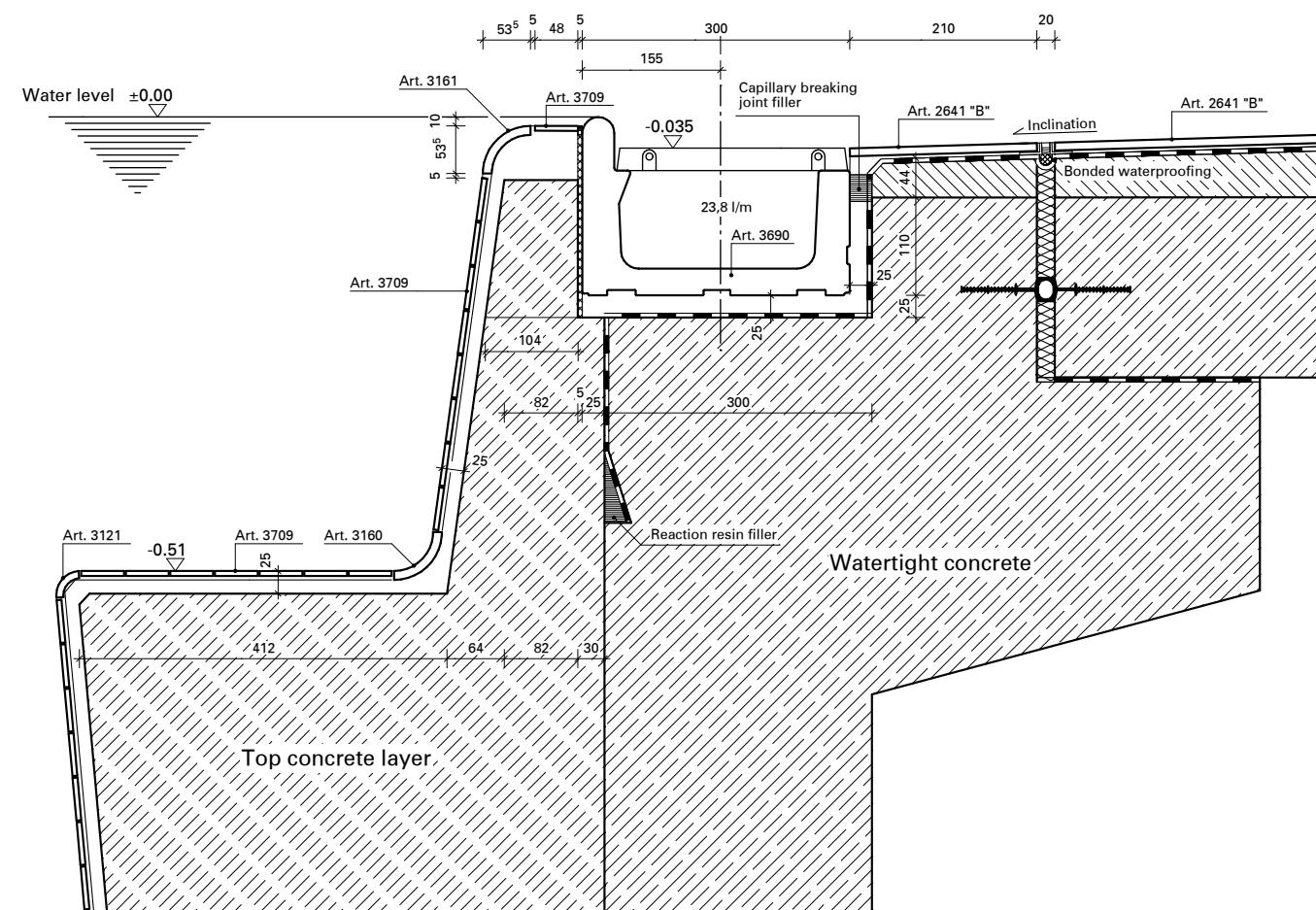
Material Glazed vitreous
Actual size see diagrams
Joints approx. 3 mm
Surface formed
Finish uni-coloured
Glaze matt
Packing Piece
Calculation unit Piece

Matching wall tiles PRO ARCHITECTURA



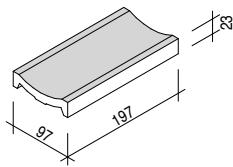
Pool edge systems in detail - Fixtures

Curved and cove base ceramic beading



Functional trims for pool surrounds

Ceramic channel in the pool rim



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

Applications Pool rim - indoors / outdoors

Material Glazed vitreous

Actual size see diagrams

Joints approx. 3 mm

Surface formed

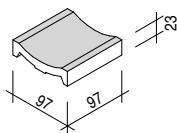
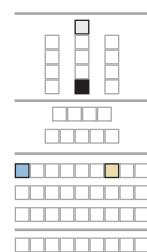
Finish uni-coloured

Glaze matt

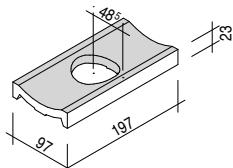
Packing Piece

Calculation unit Piece

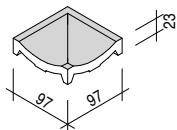
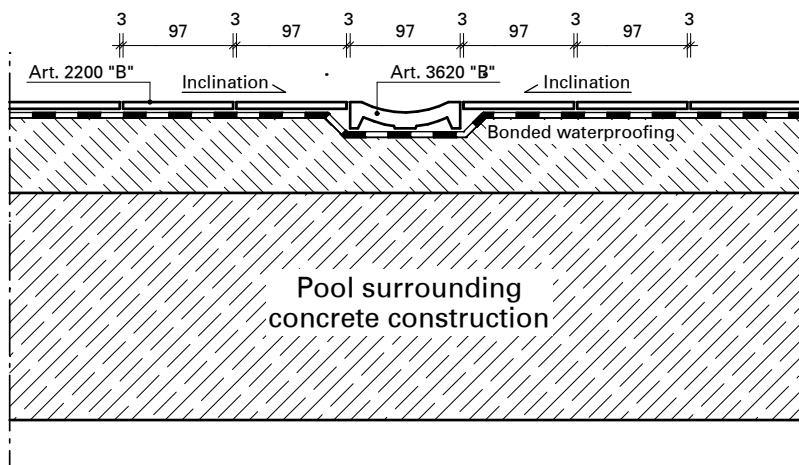
Matching wall tiles PRO ARCHITECTURA



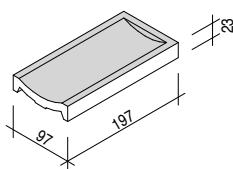
Art. 3622
Channel piece, half length
PN00, PN09, PN12, PN31



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



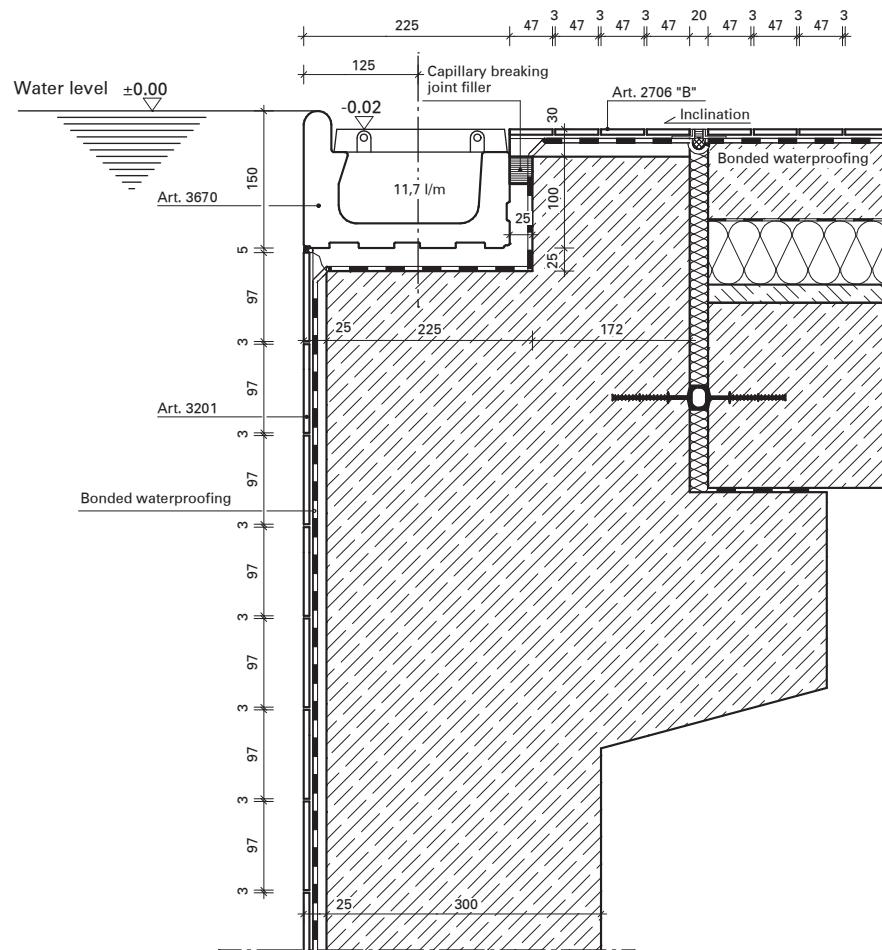
Art. 3624
Inside corner/Outside corner
PN00, PN09, PN12, PN31



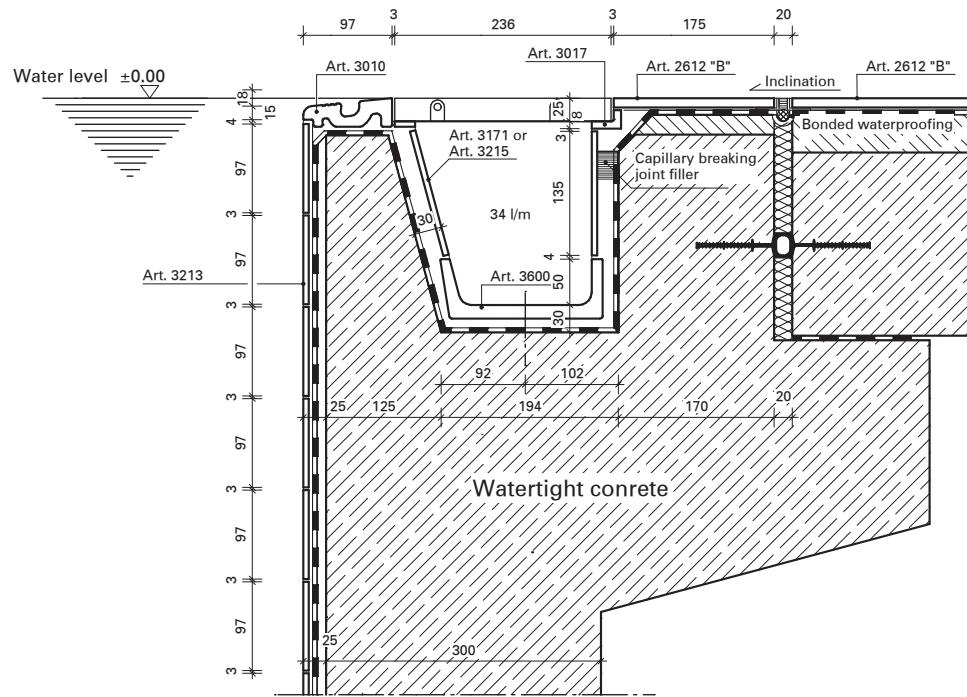
Art. 3626
End piece
PN00, PN09, PN12, PN31

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.

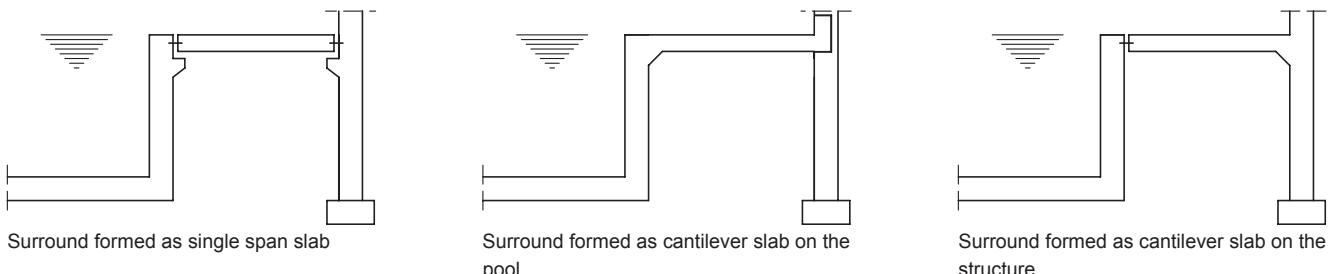


Technical aspects of application for swimming pools

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.

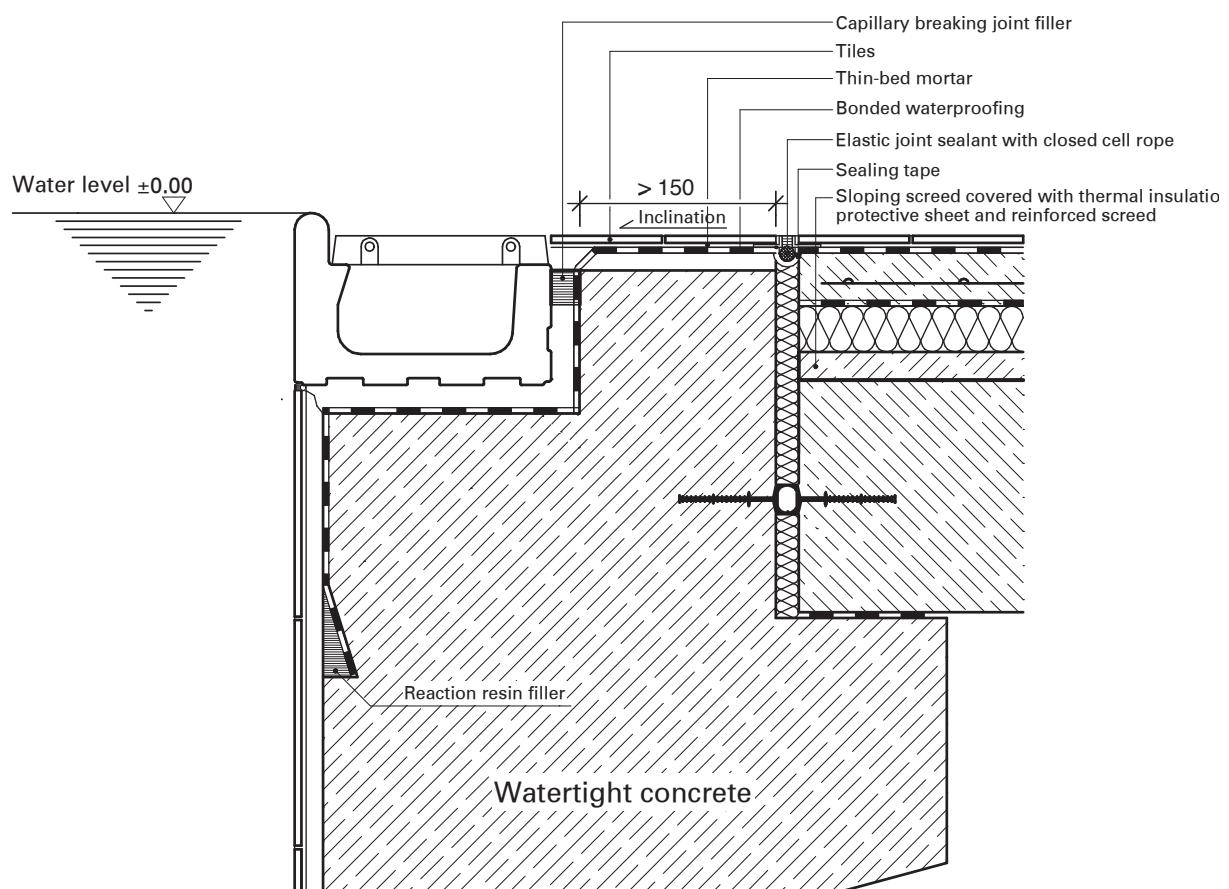
The following static systems can be used to effect the structural separation of the pool from the remaining structure.



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.

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



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.

Pools made of watertight concrete

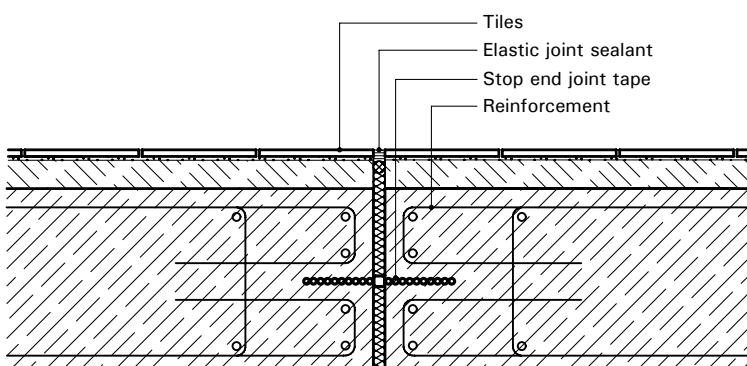
The pool is made of impermeable concrete in accordance with DIN 1045 and the structural analysis.

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 strength category of concrete: B25.
- 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.

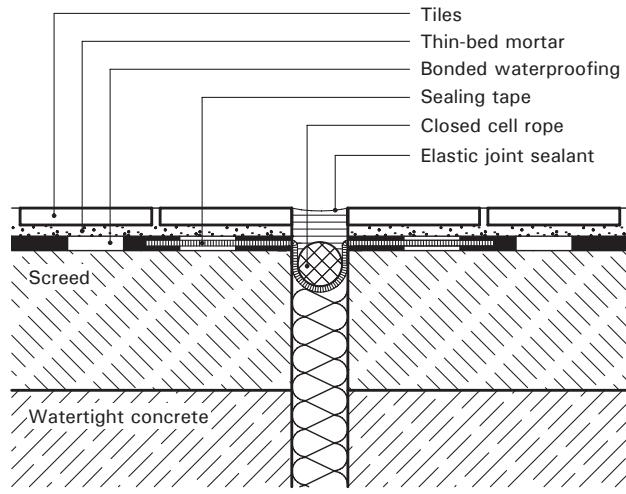
Concrete surfaces on the pool walls should be sandblasted.

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.

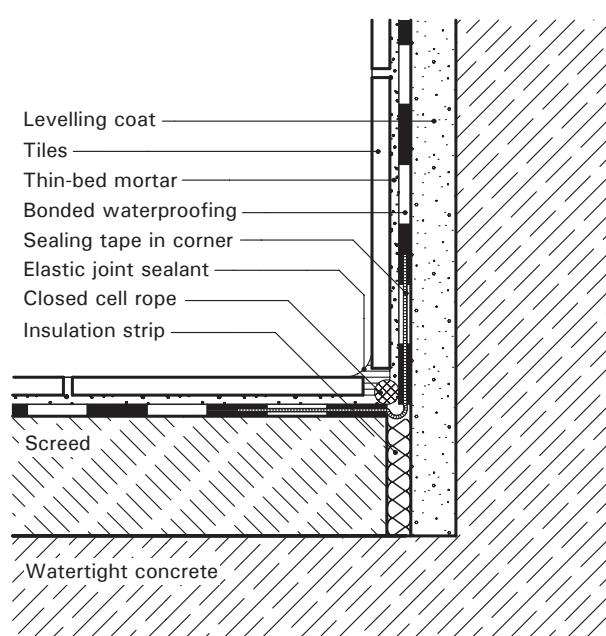


Waterproofing on structure joint

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.



Waterproofing at wall/floor joint

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

Differentiation is necessary with deference to:

- The properties of the finished cladding
- The anticipated stress levels in the cladding construction
- The size of sections and the location and execution of expansion/structural joints.

Bonded claddings

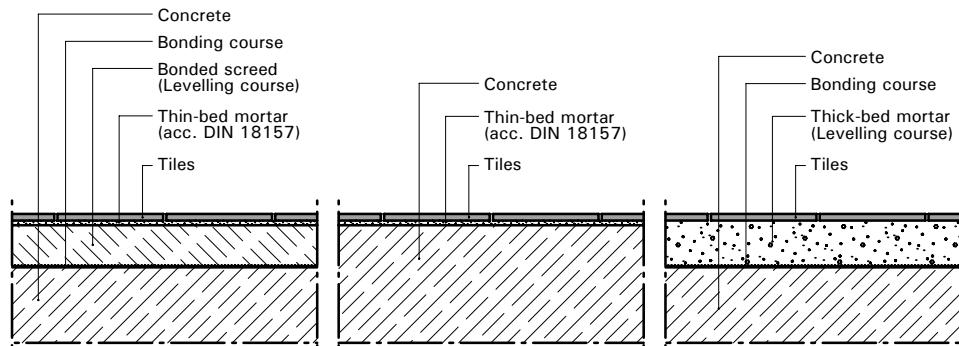
Bonded claddings are based on the principle of frictional connection, i.e. no movement is possible between the ceramic tiles and the solid base, much like in a reinforced concrete component.

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:

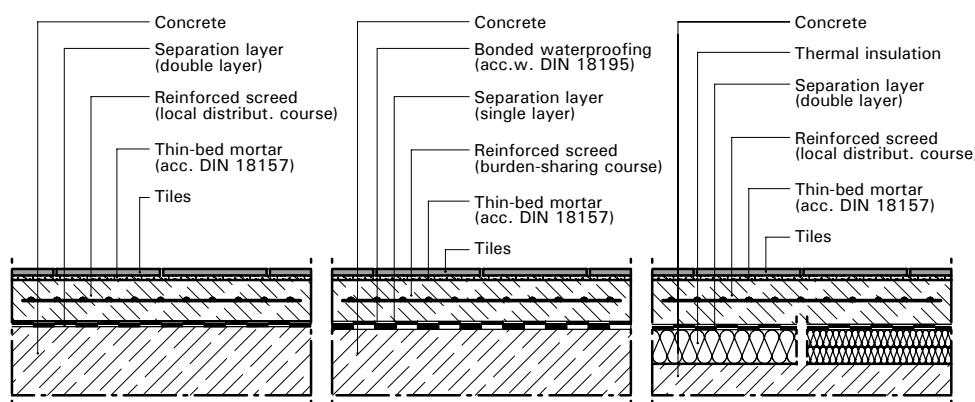
- residue and debris such as wood, metal, formwork lube or other contaminating layers that could impair adhesion
- cracks or efflorescence
- considerable unevenness
- too smooth a surface.

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.



Floating claddings

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.

Technical aspects of application for swimming pools

Ceramic claddings

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. This 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.

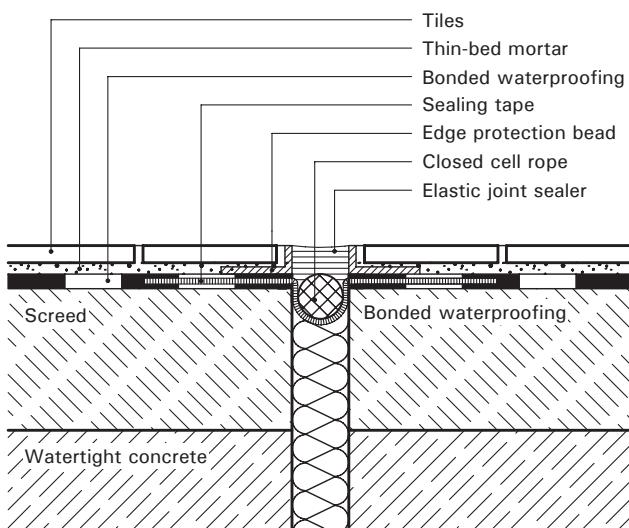


Figure 1: Waterproofing on screed joint

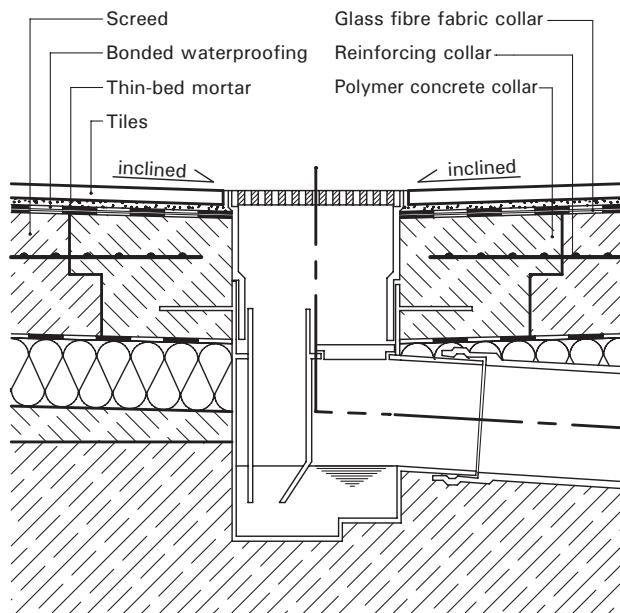


Figure 2: Waterproofing connection at drain

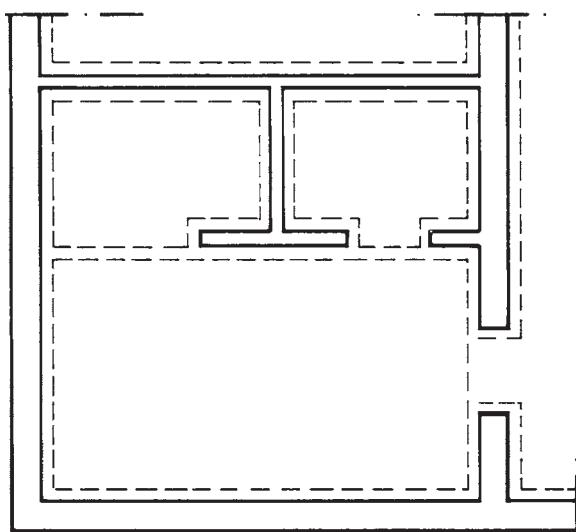
Technical aspects of application for swimming pools

Ceramic claddings

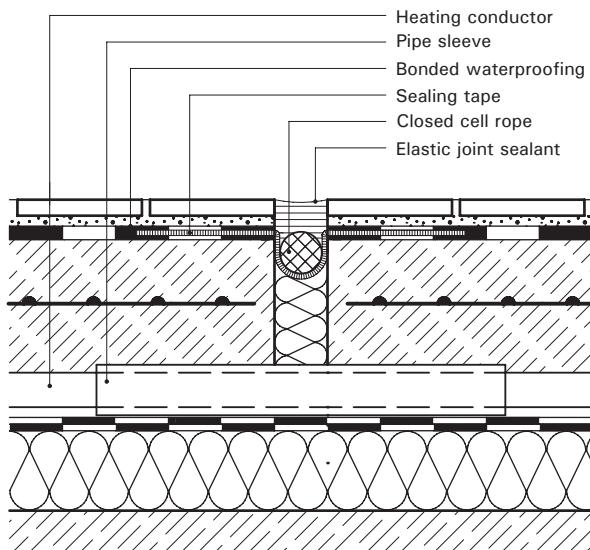
Ceramic tiles on underfloor heating

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 crea-

ted 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.



Movement in heated and unheated floating coverings



Movement joint in heated claddings.

PRO ARCHITECTURA Colours

Glazed vitreous EN 14411-BI_b · Walls and floors

Glazed porcelain stoneware EN 14411-BI_a · Walls and floors

Neutral Line



vilbostone porcelain stoneware EN 14411-BI_a · Floors

GRANIFLOOR

vilbostone plus



Glazed vitreous EN 14411-BI_b / Glazed porcelain stoneware EN 14411-BI_a · Walls and floors



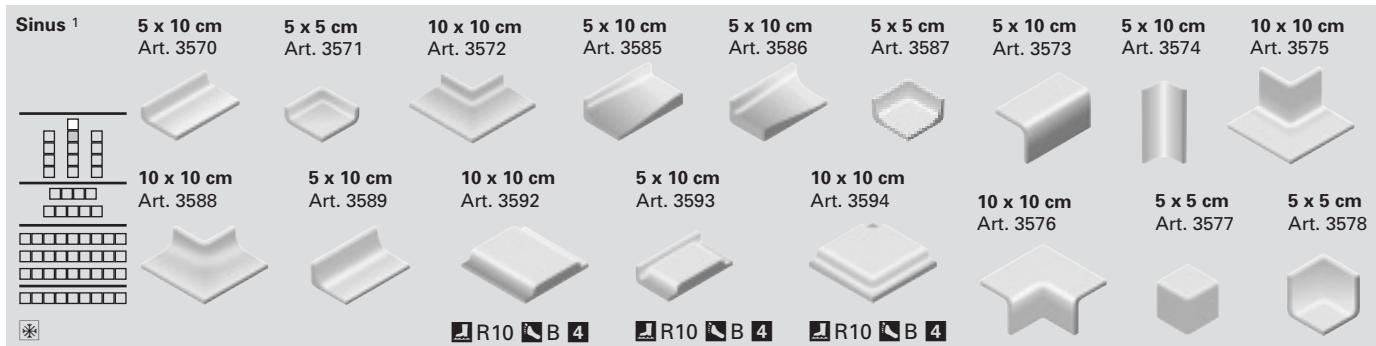
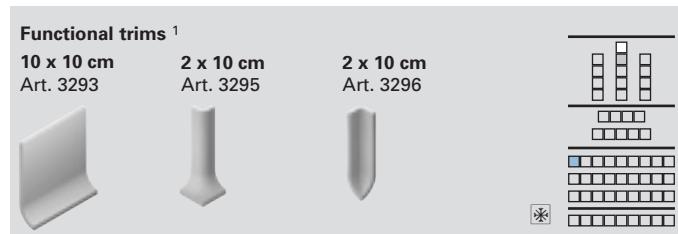
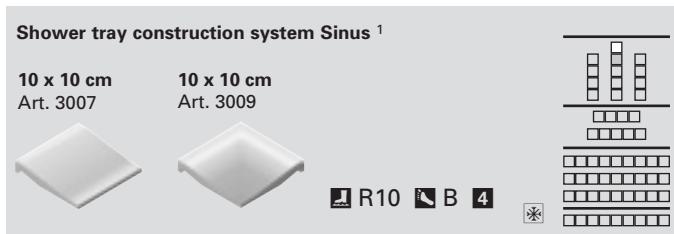
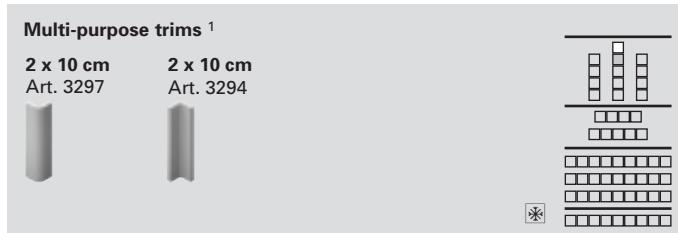
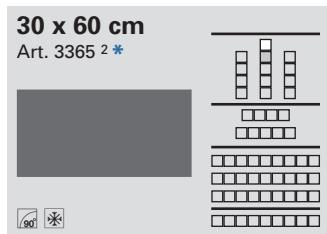
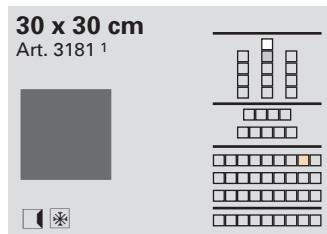
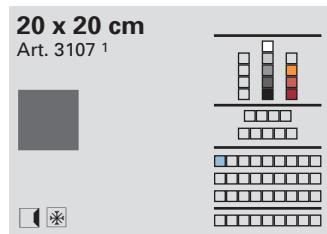
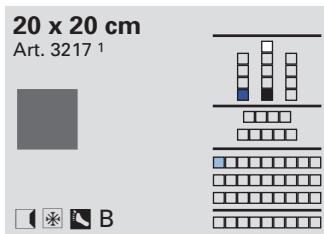
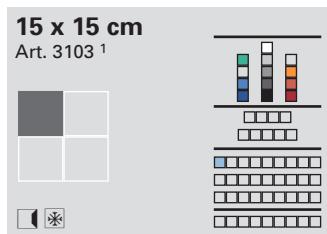
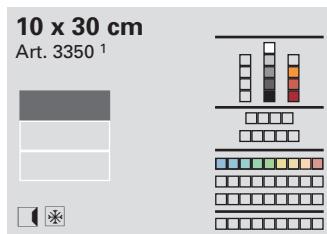
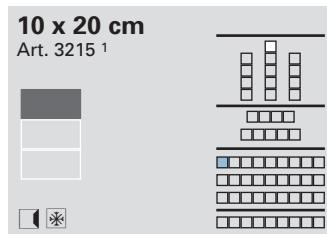
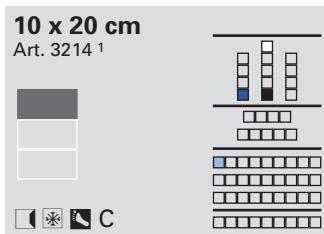
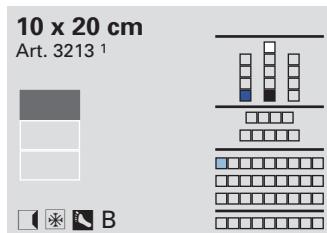
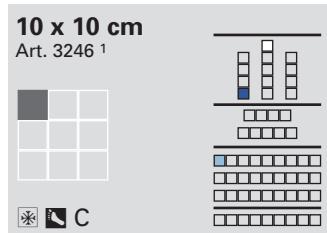
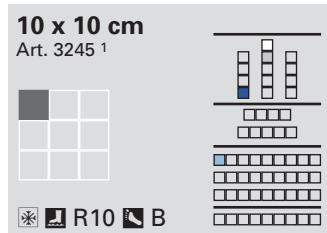
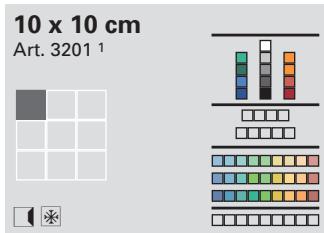
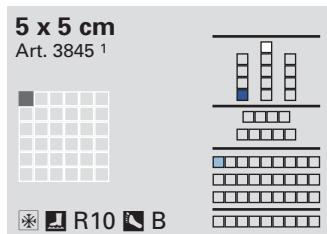
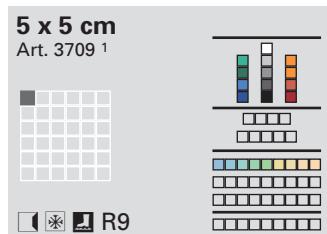
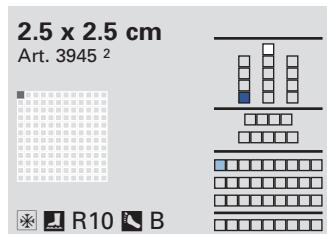
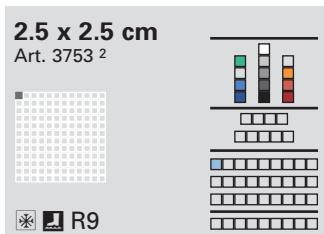
vilbostone porcelain stoneware EN 14411-BI_a · Floors

vilbostone plus

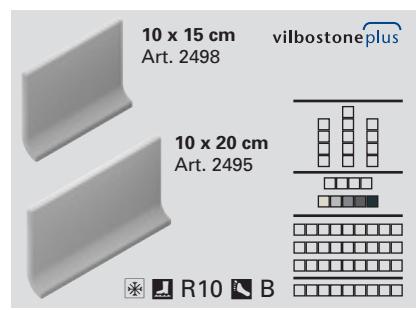
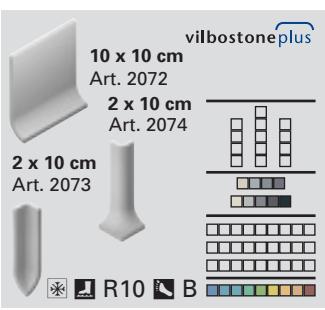
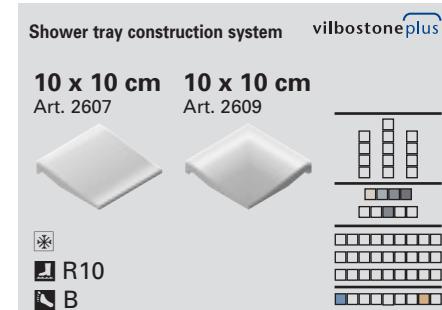
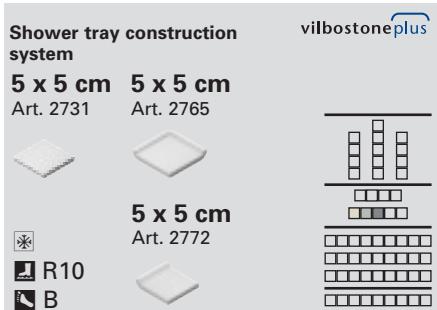
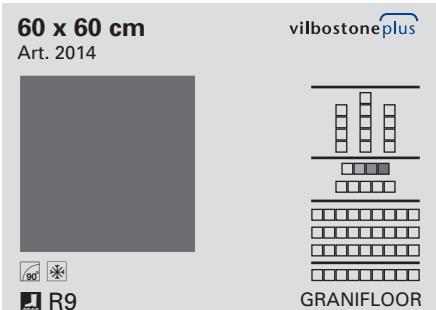
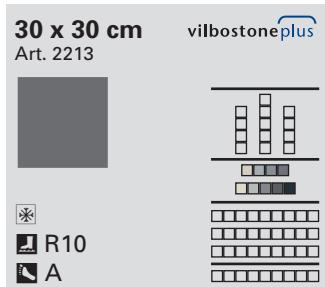
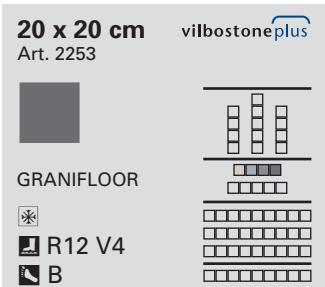
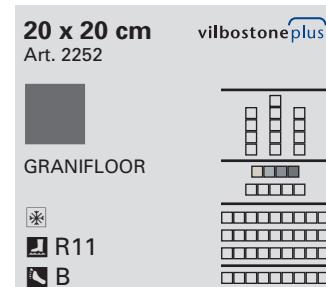
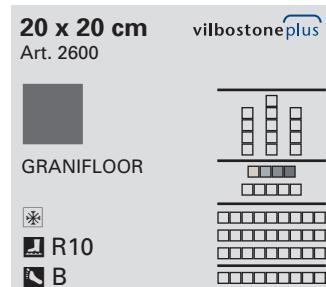
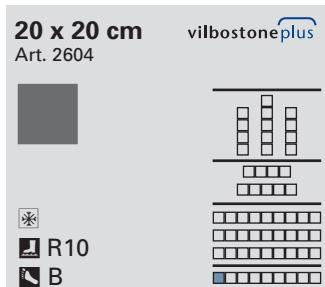
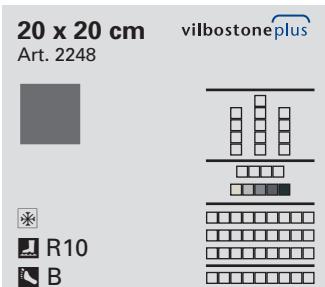
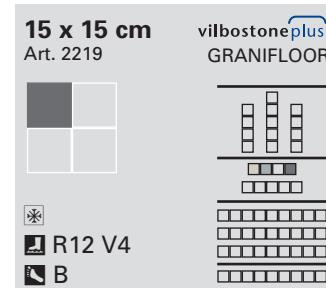
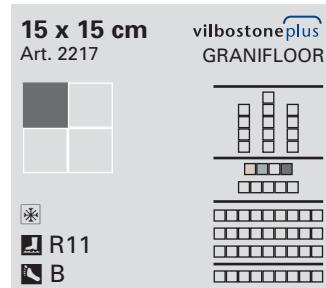
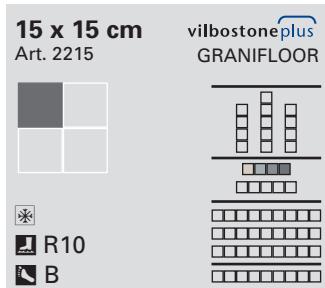
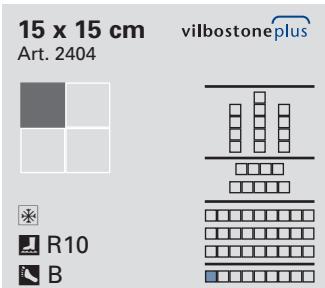
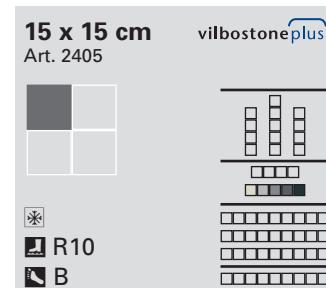
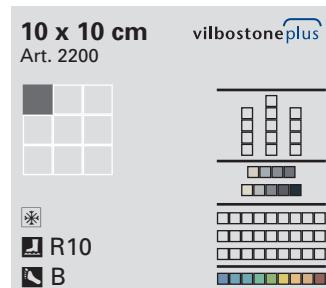
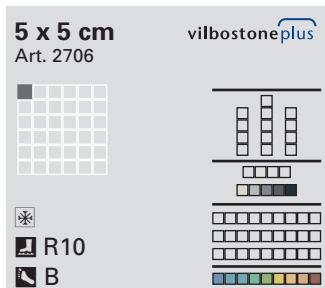
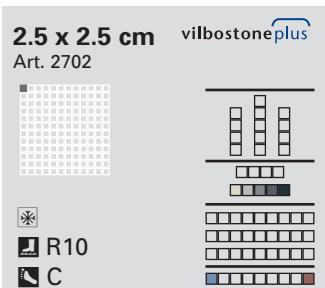


¹Glazed vitreous

²Glazed porcelain stoneware

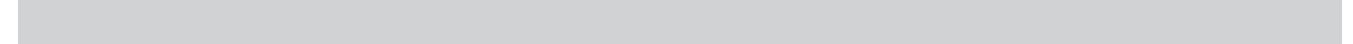


vilbostone unglazed porcelain stoneware



* = 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
 □ 2 3 4 = Wear resistance group (EN ISO-10545-7)
 vilbostone^{plus} = Surface seal

Notes



V & B Fliesen GmbH

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

