

ALFIX[®]

Ansvarlig styrke

Swimming pools

Swimming pool tiling using Alfix products



Strong solutions for swimming pool installations using Alfix

Swimming pool projects must be planned carefully to ensure that all of the involved parties work together effectively through all of the project phases – from design to project planning to execution.

It is a highly complex process that requires input from specialists with expert knowledge and know-how, and ideally, with many years of experience.

The choice of materials for the swimming pool floor and walls has a large impact on safety, maintenance, operation and the environment.

Ceramic tiles, quarry tile and mosaic tiles are natural choices for surfaces that must be easy to clean, non-slip and extremely hard-wearing. Ceramic surfaces are also visually attractive.

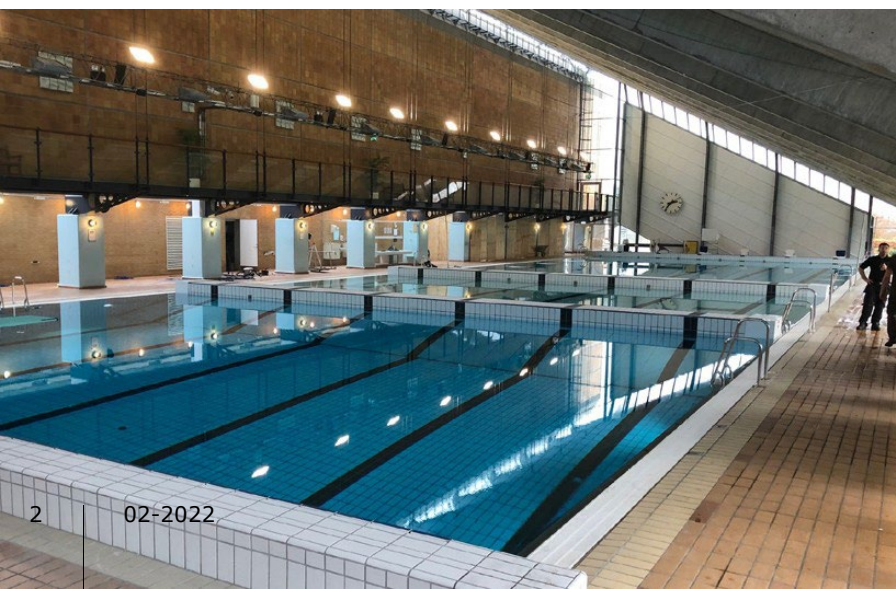
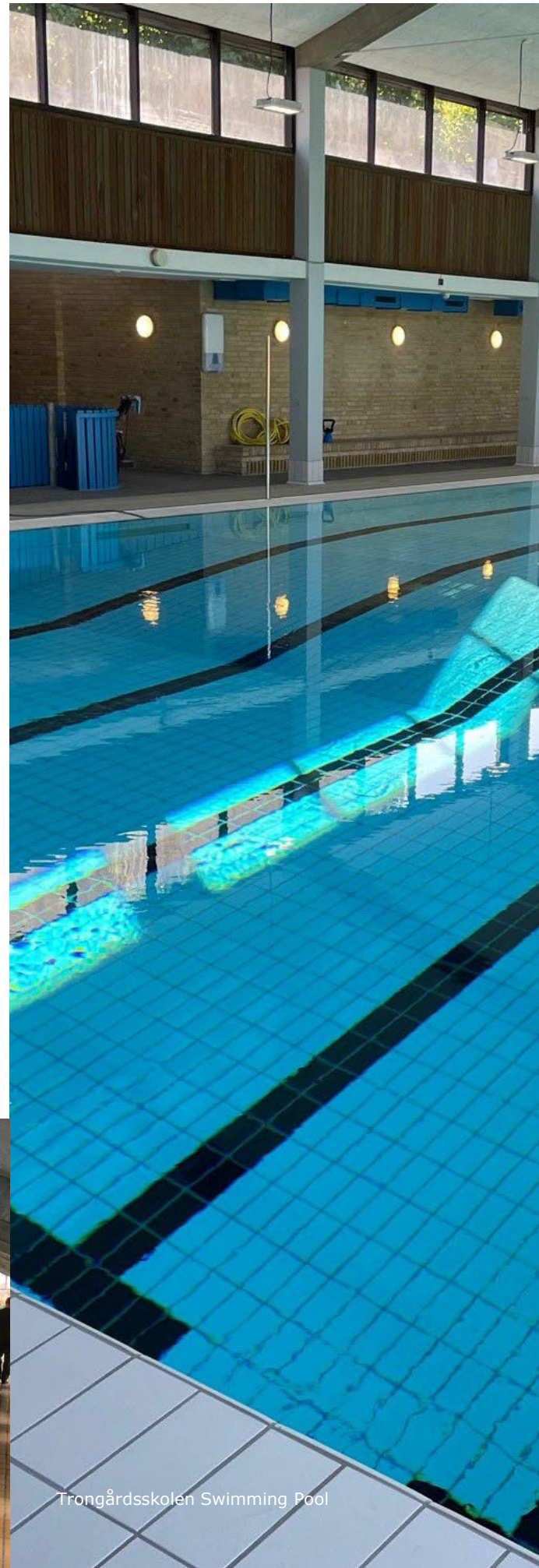
PVC liners can also be used as a membrane to protect the concrete structure and can be incorporated as a swimming pool surface, onto which the tiles can be installed directly at the waterline.

Alfix has more than 40 years of experience in supplying tile grout for swimming pools in Denmark, Norway and Sweden. Over the years, technology and craftsmanship have evolved, from the traditional thick bed method to the thin bed method, using manufactured cement-based tile adhesives.

Alfix's ongoing product development and growing expertise has resulted in a range of products that meet the latest standards in swimming pools. All of the products comply with a harmonised standard, and are CE marked in accordance with the European Construction Products Regulation (CPR) with associated declarations of performance (DoP).

Wet room/swimming pool liners are certified through ongoing inspections and checks by Dancert, the accredited certification body of the Danish Technological Institute.

The following guide is based on guidelines issued by national and international publications and on general experience gained from specific Alfix projects in Nordic countries. Reference lists can be sent on request.





CONTENTS

Standards/references	4
Substructure, concrete pool	4
Overflow channels and penetrations	6
Embedded elements and penetrations	7
Levelling of pool walls and pool floors	8
Water quality	12
Waterproofing of pool walls and pool floors	13
Tiling of pool walls and floors	17
Grouting of pool tiles	21
Operation, care, maintenance	25
Product overview	26

Standards/references

- Danish standard for swimming pool installations, DS 477, 2., 2013 version
- BKF, Flislegging av bassenger Del 1 (Norwegian industry standard on tiling in pools part 1: Design advice on concrete and tiling)
- BKF, Fliskledte svømmeanlegg (Norwegian industry standard on tiled swimming pools
 - Water quality and choice of material
- EN 206-1 Concrete - Part 1: Specification, performance, production and conformity
- Swimming pool watertightness, EN 1992
- BYG-ERFA Experience Sheet 890415
 - Emptying of swimming pools
- ZDB-Merkblatt Schwimmbadbau, Hinweise für Planung und Ausführung keramische Beläge im Schwimmbadbau – August 2012 (swimming pool construction, planning and execution guidance, ceramic coverings)
- Liquid applied water impermeable products for use beneath ceramic tiling bonded with adhesives, EN 14891
- EN 12002/12004 Adhesives - Adhesives for tiles - Determination of transverse deformation for cementitious adhesives and grouts/adhesives for ceramic tiles – Part 1: Requirements, assessment and verification of constancy of performance, classification and marking
- Grout for tiles - Requirements, evaluation of conformity, classification and designation, EN 13888
- Ceramic tiles - Definitions, classification, characteristics, evaluation of conformity and marking, EN 14411:2012



Substructures, concrete pools

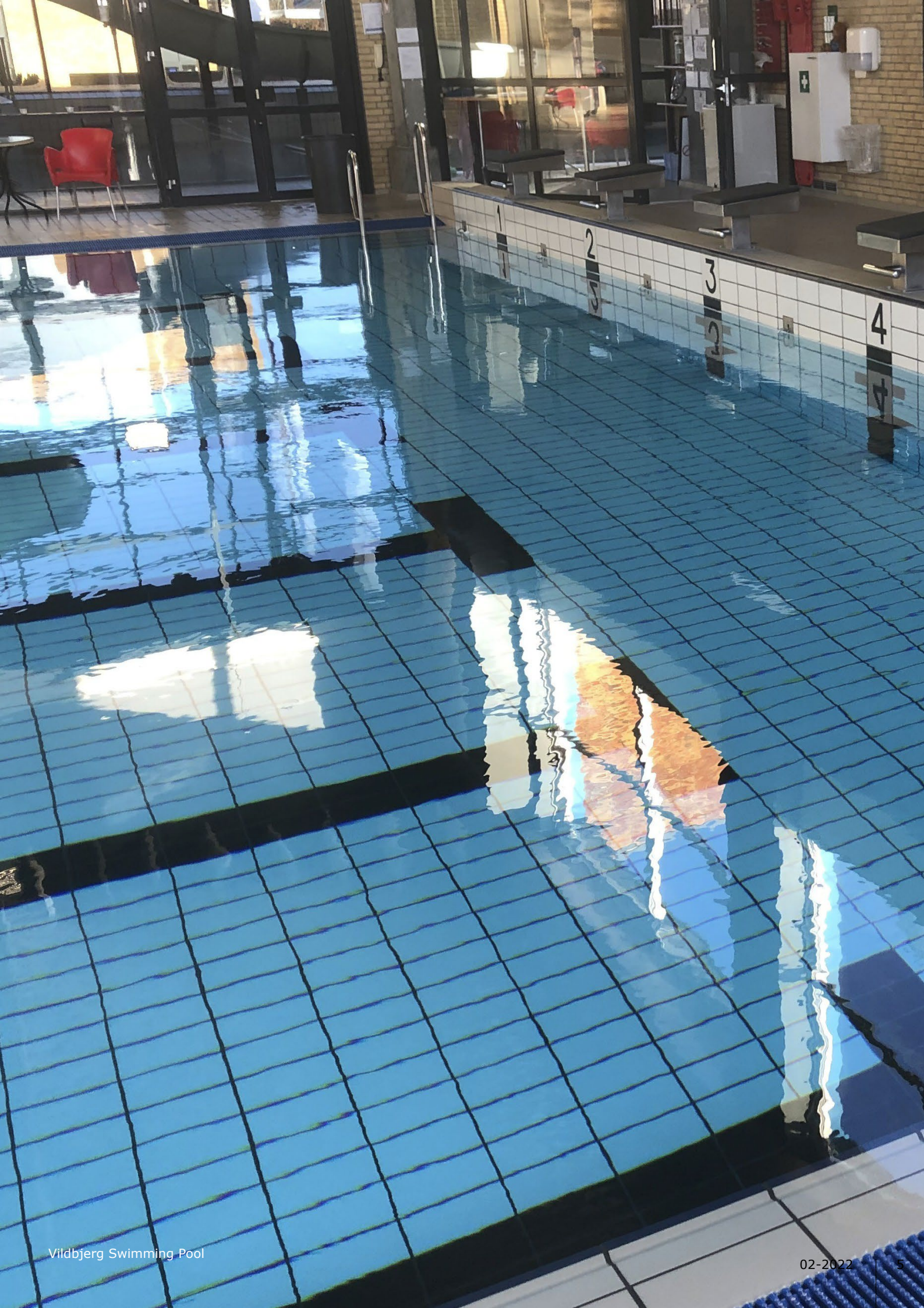
Swimming pools clad in ceramic tiles generally require that the substructure is cast watertight, and with concrete quality (45) with a low water/cement ratio and minimal shrinkage. Exposure class XD3.

Retaining structures and fittings must be securely anchored before casting the concrete in-situ to achieve the best possible seal.

The concrete must usually have a minimal age of six months before commencing with ceramic tiling.

To test the watertightness of the swimming pool it should be pressure tested before tiling by filling with water and leaving for at least seven days. The watertightness test must include joins/joints and embedded parts.





Overflow channels and penetrations

Pool edge finishing must be executed in different ways in consideration of the water level. In the case of an elevated channel system, the water level lies at the same height as the surrounding bare foot area, creating a risk of capillary suction from the pool wall.

Alfix Epoxy Primer is used as a capillary break.

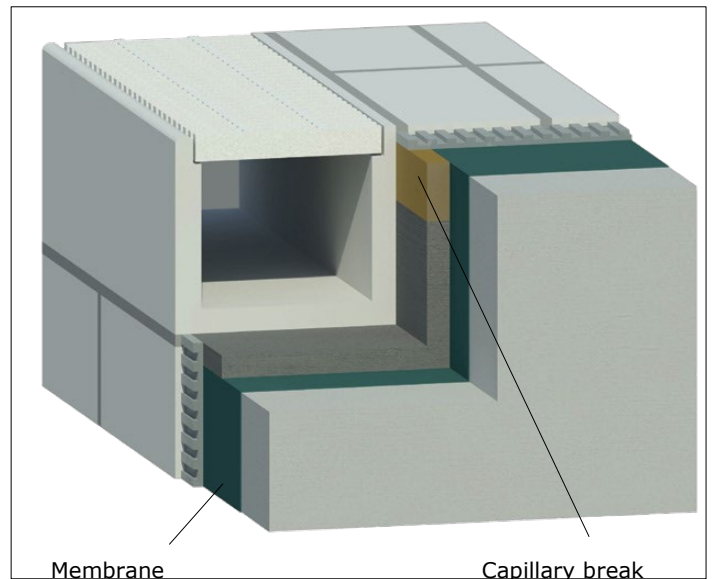
Joints with widths of up to 10 mm connecting with the overflow channels are filled with Epoxy Primer that has a thin consistency. Part B is mixed with Part A. Use a stirrer in a slow electric drill and mix until the material is homogeneous.

Up to 8 kg of Alfix Sand type 10 (0.1–0.3 mm) per 5 kg of Epoxy Primer should be added for joints with widths from 10 mm.

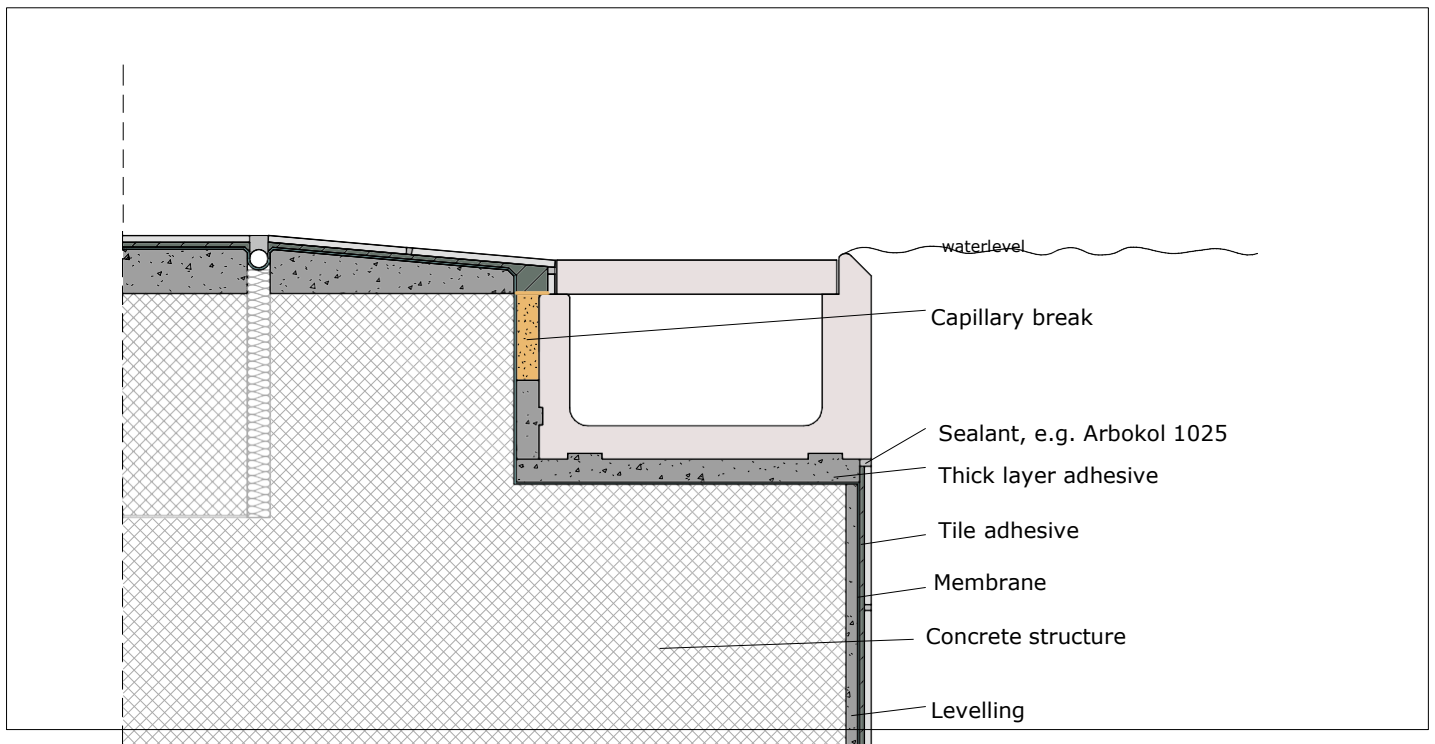
After the mixing time has expired, stir the stirred Epoxy Primer until the material is homogeneous.

The sand additive thickens the Epoxy Primer and reduces settling and heat build-up. It also reduces the consumption of Epoxy Primer.

Mixing time: Approximately 3 minutes.
The working time of Epoxy Primer after mixing is approximately 30 minutes at 20°C.



Example of finishing with the water level at the same level as the promenade, with a risk of capillary suction from the pool wall.



Example of fitting of overflow channel

Embedding details and penetrations

Around penetrations, e.g. at light fixtures, pipe lead-ins and drains, a 30–50 mm deep wedge-shaped recess is formed.

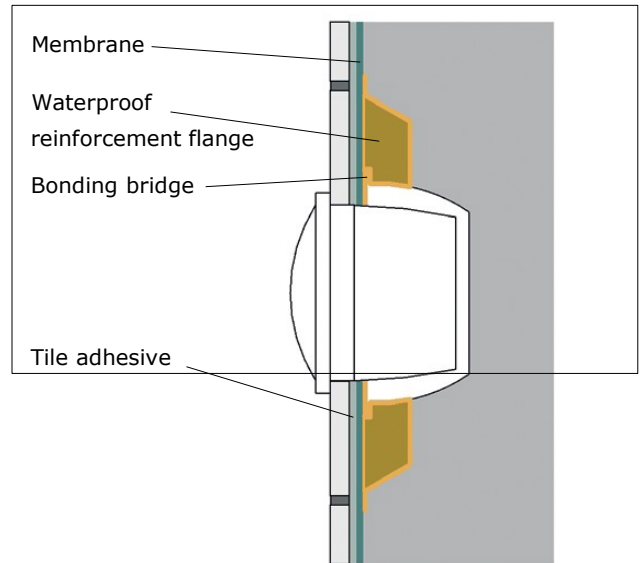
Apply Alfix Epoxy Primer as a bonding bridge onto the substrate in the recess and onto installation parts, using a brush or similar tool. Sprinkle oven-dried Alfix Sand type 1 (0.3–0.7 mm) into the wet Epoxy Primer until the surface is completely covered and saturated with sand.

Once the Epoxy Primer is dry, remove loose sand using a rush or vacuum cleaner. Next, fit sealed formwork in against the substrate around the recess and add to the Alfix Epoxy Primer maximum 8 kg of oven-dried Alfix Sand type 10 (0.1–0.3 mm) per 5 kg Epoxy Primer, poured into the recess – partly as waterproofing and partly to compensate for weaknesses in the structure.

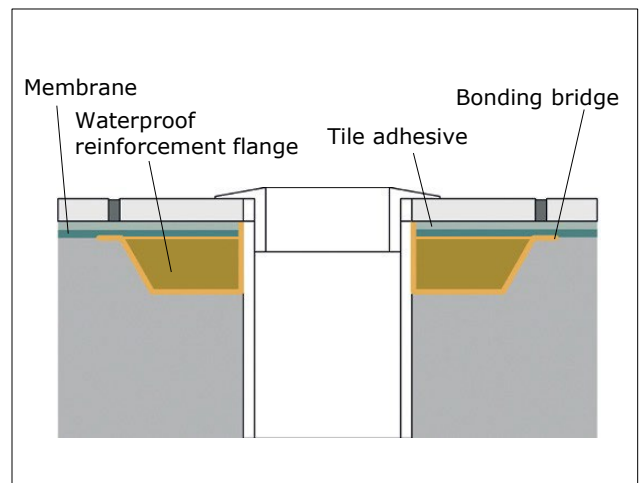
Alternatively, Alfix Epoxy Mortar can be used.
See page 19.

Remove the formwork after approx. 24 hours. Immediately after apply Alfix Epoxy Primer onto the visible epoxy flange around the installation part, using a brush or similar tool. Sprinkle oven-dried Alfix Sand type 1 (0.3–0.7 mm) into the wet Epoxy Primer until the surface is completely covered and saturated with the sand.

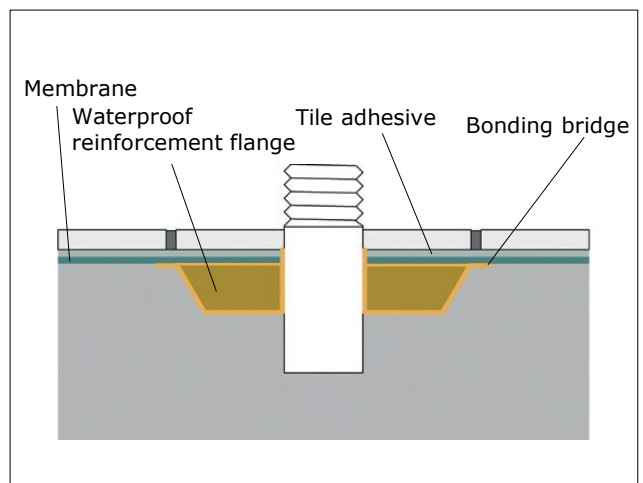
To prepare Alfix Epoxy Primer, see page 6.



Example of finish at lamp fixture



Example of the finish at a drain



Example of the finish at an attachment detail

Preparation before aligning

Corrosion protection

In general

Areas with exposed reinforcing steel can occur when repairing/renovating concrete structures. It is important that all of the exposed steel surface is cleaned so that the surface is clean and matte.

If the effects of chlorides have caused rust formation, then immediately after cleaning, rinse the reinforcing steel and concrete surface using clean water from a high-pressure cleaner.

Next, use an oil-free compressed air-dry unit to dry the repair area using compressed air.

At the latest four hours after cleaning the reinforcing steel, apply Alfix PlaneMix ST 05 onto the reinforcing steel.

Alfix PlaneMix ST 05 + PlaneMix ST 05 Fluid is used as waterproof and chloride proof smoothing coat for corrosion protection of exposed reinforcing steel in concrete structures.

Apply the Alfix PlaneMix ST 05 onto the reinforcing steel twice, using a brush to get an even and completely covering layer.

Another layer of Alfix PlaneMix ST 05 can normally be applied approx. two hours later, depending on the temperature and air humidity. The Alfix PlaneMix ST 05 must then be left to dry completely before continuing the finishing.

Mix the Alfix PlaneMix ST 05 with Alfix PlaneMix ST 05 Fluid.

Alfix PlaneMix R4 Rep

When concreting on reinforcing steel using Alfix PlaneMix R4 Rep, a covering layer of at least 20 mm is recommended. When concreting, it is important that the steel cannot move.

Always execute a smoothing layer first using a mix of Alfix PlaneMix ST 05 and Alfix PlaneMix ST 05 Fluid. Apply Alfix PlaneMix R4 Rep wet-on-wet in the wet smoothing mortar using a trowel or suitable gloves and compress thoroughly.

In the case of layer thicknesses > 45 mm, repairs must be executed several times.

The surface can be prepared using a felt, steel, plastic or sponge grouting float, all depending on the desired surface structure.

A 20 kg bag of Alfix PlaneMix R4 Rep requires approx. 2.5 l of clean cold water when mixing.

Curing

Alfix PlaneMix R4 Rep must always be protected against excessively rapid drying the first 24 hours after applying.



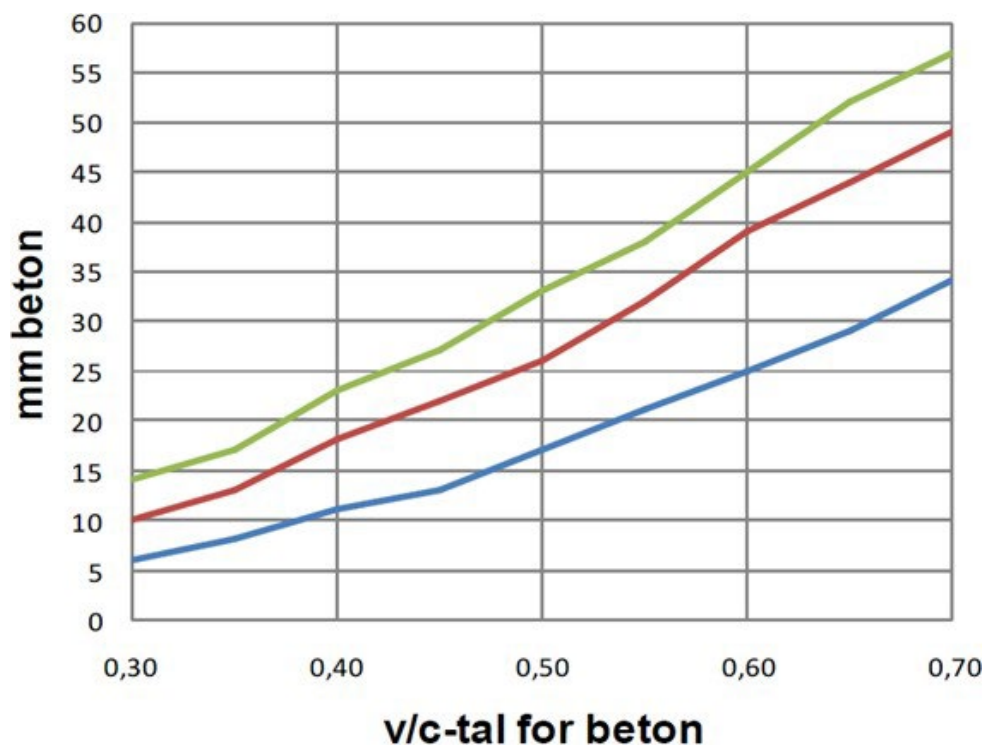
Levelling of pool walls and pool floors

Choice of products

Product	Wall	Floor	Working time at +20°C	Layer thickness	Drying time before waterproofing /tiling	Compressive strength
Alfix PlaneMix ST 05 Smoothing mortar and thin coat finishing mortar	X	X	30–60 minutes	1–5 mm	2 days	4 N/mm ² (1 day) 25 N/mm ² (7 days) 35 N/mm ² (28 days)
Alfix ProFix Flexible tile adhesive	X	X	3–4 hours	1–5 mm	1 day	13–15 N/mm ²
Alfix PlaneMix 25 exterior Self-levelling and smoothing compound		X	20–30 minutes	2–25 mm	2 days	25–35 N/mm ²
Alfix PlaneMix 100 Fast-setting screeding mortar for floors		X	50–60 minutes	20–100 mm	1 day	25–35 N/mm ²
Alfix PlaneMix S40 Pool and concrete repair mortar	X	X	1–2 hours	5–40 mm	2–3 days	≥ 40 N/mm ²
Alfix PlaneMix R4 Rep Pool and concrete repair mortar	X	X	20–30 minutes	5–45 mm	1 day	15 N/mm ² (1 day) 40 N/mm ² (7 days) 50 N/mm ² (28 days)

Alfix PlaneMix ST 05 as chloride barrier

If a covering layer on concrete structures is needed, Alfix PlaneMix ST 05 can be used as a waterproof chloride barrier.



Levelling of pool walls and pool floors

In general

The substrate must be structurally sound and able to support loads and be free of dust, grease, salts, fouling, and other contamination.

Any damaged concrete should be cut away.

The surface should be wettable.

Depending on the state of the substrate, milling may be required, or alternatively, dry or wet sand blasting.

The cohesive strength must be $\geq 1.5 \text{ N/mm}^2$. Any visible reinforcing steel must have corrosion protection applied.

Working temperature: $+10^\circ\text{C}$ to $+25^\circ\text{C}$.

Cracks in the substrate Cracks in the cement substrate $> 0.2 \text{ mm}$ and voids must be injected or cut out to a width of at least 4 mm.

Subsequently, seal channels and cracks using Alfix Epoxy Primer. Sprinkle quartz sand into the wet epoxy until fully covered.

There must not be any epoxy remaining that does not have sand.

If this is the case, it must be removed by grinding.

Alfix PlaneMix ST 05

Used for levelling and as waterproof and chloride-proof thin coat finishing from 1–5 mm thickness.

Mix the Alfix PlaneMix ST 05 with Alfix PlaneMix ST 05 Fluid.

Mixing: 4.0–5.0 l of Alfix PlaneMix ST 05 Fluid per 20 kg bag.

Alfix ProFix

Used for filling and levelling of holes, gaps and uneven areas from 1–5 mm. Apply directly onto the substrate using a smooth trowel as a thin layer or for levelling.

Mixing: 5.4 l of clean, cold water per 20 kg bag.

Alfix PlaneMix 25 exterior

Used to repair and patch uneven areas from 2–25 mm.

Remember to mask floor drains, etc. Requires priming with Alfix PlaneMixPrimer diluted 1:6 with clean water.

Start levelling or straightening once the primed surface is dry or no later than 24 hours after priming is completed.

Mixing: 3.2–3.6 l of clean, cold water per 20 kg bag.

Alfix PlaneMix 100

Used for repairing and screeding areas from 20–100 mm.

For surfaces requiring bonded coating, use a broom or brush to apply and work in a mixture of Alfix

PlaneMixPrimer and Alfix PlaneMix 100 in a ratio of 1:1 for full coverage.

Apply Alfix PlaneMix 100 wet-on-wet with a smoothing board/straightedge and rendered together.

The application, rendering and smoothing should be carried out in one continuous operation.

Mixing: 1.8–2.0 l of clean, cold water per 20 kg bag.

Alfix PlaneMix R4 Rep

For levelling and repairs to a concrete structure thickness of 5–45 mm that is part of the statics system. The surface is slurry coated using a mix of Alfix PlaneMix ST 05 and Alfix PlaneMix ST 05 Fluid.

Apply Alfix PlaneMix R4 Rep wet-on-wet in the wet smoothing mortar using a trowel or suitable gloves and compress thoroughly.

The surface can be prepared using a felt, steel plastic or sponge grouting float, all depending on the desired surface structure.

Mixing: Approx. 2.5 l of clean water per 20 kg bag.



Levelling of pool walls and pool floors

Alfix PlaneMix S40

Used for levelling and repairs in a thickness of 5–40 mm. Suitable for structures where there are stringent requirements relating to the concrete substrate and mortar.

Always execute a smoothing layer first using a mix of Alfix PlaneMix S40 and Alfix PlaneMixPrimer in the ratio 1:1. Apply the smoothing layer using a brush or strong paint brush for full coverage.

Walls: It is important that you first wait until the smoothing layer “has set” on vertical surfaces. You can then subsequently apply prepared Alfix PlaneMix S40 onto the substrate using a trowel or steel board float.

Floor: Alfix PlaneMix S40 can be applied wet-on-wet onto horizontal surfaces or within 8 hours after the slurry bonding coat was executed.

Ensure that the mortar is compressed and has a dense and compact appearance.

For large areas, use straight edges and guide battens. Edges and transitions should be at right angles with a minimum depth of 5 mm to avoid a weak transitional layer.

Once the mortar starts to set, finish the surface with a float.

Mixing (walls): 3.0 l of clean, cold water per 20 kg bag.

Mixing (floor): 2.7 l of clean, cold water per 20 kg bag.

Curing

Alfix PlaneMix S40 must always be protected against excessively rapid drying to prevent shrinkage and loss of strength. To cure, cover with plastic sheeting for the first 5 days.

If working at temperatures below +10°C, the curing time should be extended



Slurry bonding



Applying and compressing the layer on the floor



Levelling of Alfix PlaneMix S40



Smoothing with a float



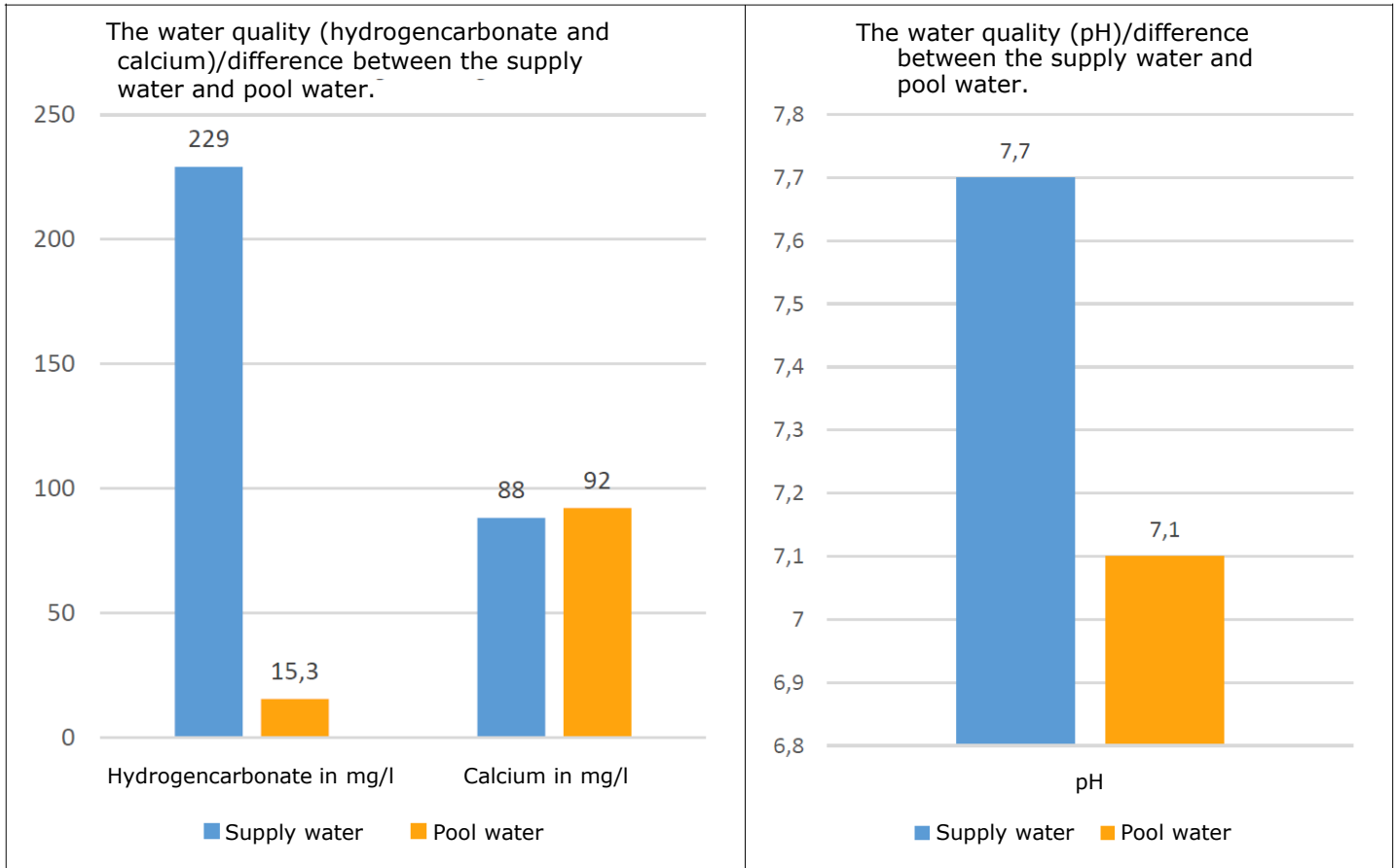
Water quality

To select the right membrane, tile adhesive and sealant for the swimming pool, you must know what the fixed desired pool water quality parameters are going to be for the finished swimming pool.

The choice of product depends on the pool water's ability to dissolve calcium carbonate, temperature and salt content.

Water treatment of the pool water (chlorine, acidity regulator and if required, softening) changes the pool water's composition in relation to the quality of the water supplied by the waterworks.

This means that the water analysis from the associated waterworks must be sufficient for the assessment of the pool water's ability to dissolve calcium carbonate.



Previously, LSI values were often used to calculate the water's ability to dissolve calcium carbonate. The pool water's chloride content affects the water's conductivity, which is included in the calculation of the LSI value and this leads to imprecise results. The Alfix method for evaluating the water quality is based on the three most important parameters: the pH value, the concentration of hydrogencarbonate and the concentration of calcium.

Alfix defines "non-aggressive" water at +28°C

- Hardness is $\geq 8^{\circ}\text{dH}$, equivalent to $\geq 55 \text{ mg/l}$ calcium
- $\text{pH} \geq 6.8$
- Hydrogencarbonate $\geq 15 \text{ mg/l}$

If the above conditions are met, cement-based products can be used to build the swimming pool.

Important!

Hot water and salt water swimming pools: Epoxy products are recommended for hot water pools with temperatures above +30°C as well as for salt water/seawater pools.

For more information contact our service-technical department.

Alfix can help with the analysis of the pool water and with calculations of the water's ability to dissolve calcium carbonate, hardness, LSI value, etc.

Waterproofing of pool walls and pool floors

Choice of products

Product	Membrane thickness	Crack bridging	Tensile strength	Drying time before tiling
Alfix 2K Sealing Membrane grey, cement-based	2.0 mm	≥0.75 mm	0.8–1.2 N/mm ²	24 hours
Alfix Epoxy Membrane, acid and chemical resistant sealing compound	2.0 mm	1.6 mm	1.2–2.0 N/mm ²	16 hours
PVC pool liner DLW delifol NG	1.5 mm	-	1.9–2.3 kN/ 50 mm	24 hours
PVC pool liner RENOLIT ALKORPLAN 2000 - type 35216	1.5 mm	-	≥1.1 kN/50 mm	24 hours
Alfix PlaneMix ST 05 *	1–2 mm	-	1.5–2.5 N/mm ²	24 hours

*For buffer tank

In general

The pool structure must be completely watertight. To ensure this, fill the pool with water before tiling is commenced.

Applying a membrane before tiling can provide greater protection from microcracking and movements in the concrete. A membrane provides greater elasticity and protects the concrete, but will lead to a reduced adhesion strength.

The concrete should be solid and sustainable, with a cohesive strength of at least 1.5 N/mm². Moisture content < 4 (weight percent).

Epoxy membranes are recommended for hot water or salt water pools as they provide greater protection against the ingress of salt and chloride.

The working temperature should not be below +10°C.

Waterproofing of buffer tanks

For the waterproofing of buffer tanks, use Alfix PlaneMix ST 05 mixed with Alfix PlaneMix ST 05 Fluid.

Apply Alfix PlaneMix ST 05 at least twice using a suitable paint brush or brush or use a traditional bricklayer's tool, in thicknesses of at least 1 mm per layer.

The mixing should be carried out within 30–60 minutes, dependent on the ambient temperature. At low ambient temperatures of between +5°C and +10°C, store both components at +15°C to +25°C.

Waterproofing of pool walls and pool floors

Alfix 2K Sealing Membrane, grey

Preparation

Prime the concrete substrate using Alfix PlaneMixPrimer, diluted 1:6 with clean water.

Seals

All horizontal and vertical joints and penetrations must be sealed using Alfix VT strips and Alfix VT corners. Apply the sealing membrane to the substrate using a paint brush and press seals firmly into the wet sealing membrane. The substrate must be smoothed to avoid voids.

The overlap at corners must be at least 5 cm. Once the sealing strips and corners have been applied, coat with a new coat of sealing membrane.

Waterproofing

Apply Alfix 2K Sealing Membrane onto the substrate three times, the first time as a smooth thin pore filling coat.

Drying time: Approx. 1 Hour.

Next, apply Alfix 2K Sealing membrane with a 4 x 4 mm notched trowel held at an angle of 60°, then smooth the surface for a pore-free full coverage coat.

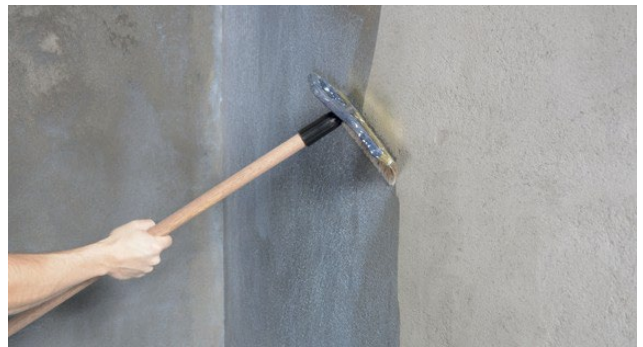
Drying time: 24 hours at +20°C.

Next, apply a new coat of Alfix 2K Sealing Membrane with a 4 x 4 mm trowel held at an angle of 60°.

Smooth the surface to ensure an even layer thickness of approx. 2 mm.

Coverage: Approximately 3 kg/m².

Drying time before tiling: Min. 24 hours at +20°C.



Priming with Alfix PlaneMixPrimer



Fitting of Alfix VT corner in the sealing membrane.



Fitting of Alfix VT sealing strip



Applying Alfix 2K Sealing Membrane – pore filling coat



Applying 2K Sealing Membrane and smoothing

Waterproofing of pool walls and pool floors

Alfix Epoxy Membrane

Preparation

The surface must be pre-treated with Alfix Epoxy Primer sprinkled with Alfix Sand type 1 (0.3–0.7 mm).

The surface must be saturated with sand.

All excess sand must be removed by brushing or vacuum cleaning.

Drying time: Min. 16 hours at +20°C and max. 48 hours. (See page 7)

Seals

All horizontal and vertical joints and penetrations must be sealed using Alfix VT strips and Alfix VT corners.

Apply the Alfix Epoxy Membrane onto the substrate using a paint brush and press the seals firmly into the wet membrane. The substrate must be smoothed to avoid voids.

The overlap at corners must be at least 5 cm.

Once the sealing strips and corners have been fitted, coat with a new coat of sealing membrane.

Waterproofing

Apply Alfix Epoxy Membrane as two layers to full coverage, each coat 1 mm thick.

Always fit Alfix VT sealing strip in the first layer. Apply the membrane using a short pile paint roller or a 4 x 4 mm notched trowel, and subsequently smooth the surface.

Drying time, first layer:

Min. 16 hours at +20°C and max. 48 hours.

In the second layer, sprinkle type 2 Alfix Sand (0.7–0.12 mm) directly onto the freshly applied membrane until the entire surface is saturated with sand.

Use a sandblasting gun if necessary.

NOTICE

Alfix Tix agent can be used on walls as a thickener agent that increases the membrane's firmness and load-bearing capacity. Mix Part A with Part B in a clean container and stir until the contents become homogeneous before adding the Tix agent.

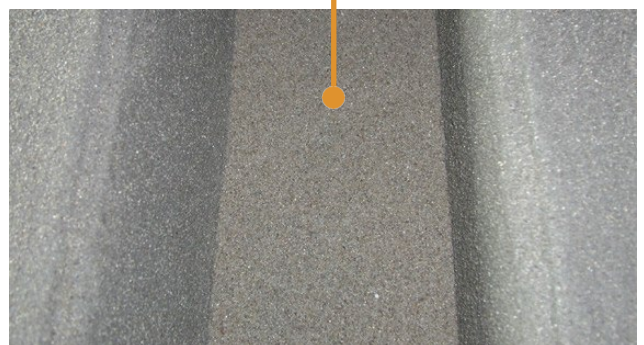
The Tix agent can be added in quantities from 0 g to a maximum of 300 g per 10 kg of Alfix Epoxy Membrane.



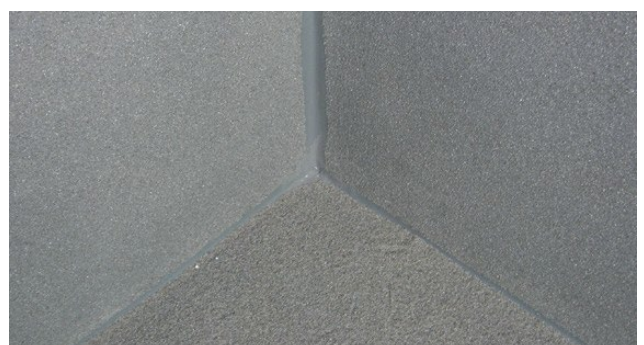
Application of Alfix Epoxy Membrane



Fitting of Alfix VT sealing strip



Sand saturated surface



No sand in movement zones

Waterproofing of pool walls and pool floors

PVC pool liner

Reinforced liner for waterproofing the swimming pool as a membrane and finished surface.

Fit in accordance with the supplier's instructions.

All liner, on which tiles shall be fixed, must always be adhered to the substrate.

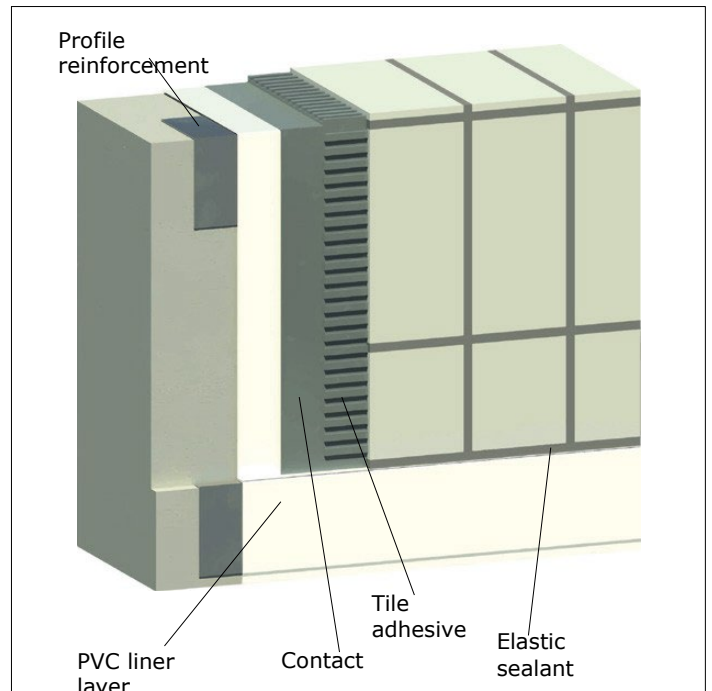
To create a complete seal, all overlaps should be hot-air welded. 1–2 rows of tiles can be fixed to liner membranes below the water level.

Tiling

Fit tiles onto Alfix ProFix or Alfix NormalFix tile adhesive mixed with Alfix FlexBinder.

Grouting

In the transition between tiles and PVC liner, use a two-part elastic sealant, such as Arbokol 1025, a sealant designed for areas permanently exposed to water.



Example of finish with tiles on PVC liner

Tiling of pool walls and pool floors

Choice of products

Product	Concrete	PVC liner	Alfix 2K Sealing Membrane, Alfix Epoxy Membrane	Working time at +20°C	Layer thickness	Drying time before grouting
Alfix ProFix Flexible tile adhesive	X		X	Approx. 4 hours	3–10 mm	24 hours
Alfix ProFix + FlexBinder Flexible tile adhesive	X	X	X	Approx. 4 hours	3–10 mm	24 hours
Alfix C2 Epoxy 2-component system	X	X	X	Approx. 50 minutes	2–4 mm	24 hours
Alfix NormalFix + FlexBinder Elastic tile adhesive	X	X	X	Approx. 1 hour	3–5 mm	2–3 days

Expected tensile strength of the individual substrate

Product	Concrete	PVC liner	Alfix 2K Sealing Membrane, Alfix Epoxy Membrane
Alfix ProFix	1.5–2.0 N/mm ²	-	0.8–1.2 N/mm ²
Alfix ProFix + FlexBinder	1.5–2.0 N/mm ²	0.8–1.2 N/mm ²	0.8–1.2 N/mm ²
Alfix C2 Epoxy	> 2.0 N/mm ²	0.8–2.5 N/mm ²	0.8–2.5 N/mm ²
Alfix NormalFix + FlexBinder	1.5–1.7 N/mm ²	0.8–1.2 N/mm ²	0.8–1.2 N/mm ²

Trowel notch size is dependent on tile size

Tile size	Notched trowel/notch size
<50 mm	3 x 3 - 4 x 4 mm
50–200 mm	6 x 6 - 8 x 8 mm
200–300 mm	8 x 8 - 10 x 10 mm
>300 mm	10 x 10 - 12 x 12 mm



In general

Watertight concrete should be structurally sound with no crack formation. The cohesive strength of the concrete must be $\geq 1.5 \text{ N/mm}^2$. Drying times for levelling and application of the membrane or liner must be complied with.

DS 477 stipulates that the average adhesive strength for tiles fixed on concrete must be 1.5 N/mm^2 .

On request, Alfix can carry out on-site measurement of the adhesion strengths.

Alfix 2K Sealing Membrane should be completely dry with a firm, fully covering surface.

Alfix Epoxy Membrane should be hardened and covered with sand, have a sandpaper appearance but cleaned so it is free of loose sand. There must not be any areas with Epoxy Membrane without sand.

The tiles/quarry tiles should be suitable for pool applications and compatible with the actual environment. Water absorption ≤ 3 (weight percent).

Mosaic tiles should be suitable for pool applications, paper or plastic faced.

Mesh-backed mosaic tiles are not suitable for pools or areas exposed to water.

Use Alfix C2 Epoxy for fixing mosaic tiles.

Working temperature: +10°C to +25°C.

Tiling of pool walls and pool floors

Substrate

- Waterproof concrete
- Alfix 2K Sealing Membrane
- Alfix Epoxy Membrane

Alfix ProFix

Use double adhesion in pools (buttering - floating method), where the adhesive is applied to both the substrate and tiles.

Use a notched trowel to spread Alfix ProFix across the substrate, use the straight edge first and then the notched edge to create a ridged bed. The trowel notch size is dependent on the size of the tile and it must be ensured that the correct amount of tile adhesive is applied.

Back butter each tile with a thin layer of Alfix ProFix before positioning onto the wet adhesive, usually within approx. 20–30 minutes.

The back of the tile should be completely covered without voids.

Check the adhesive coverage regularly. Mixing: Mix approx. 0.30 l of clean, cold water per kg of powder, corresponding to 6 l per 20 kg bag.



Applying tile adhesive using a notched trowel



Back-buttering the tile with a thin coat



Fitting the tiles



Checking the adhesive coverage

Tiling of pool walls and pool floors

Substrate

- Waterproof concrete
- Alfix 2K Sealing Membrane
- Alfix Epoxy Membrane

Alfix C2 Epoxy

Fit the tiles on the Alfix C2 Epoxy using the double adhesive method (buttering - floating method), where the adhesive is applied to both the substrate and tiles. Use a notched trowel to spread Alfix C2 Epoxy across the substrate; use the straight edge first and then the notched edge to create a ridged bed. Back-butter each tile with a thin layer of Alfix C2 Epoxy and fit onto the wet adhesive.

The back of the tile should be completely covered without voids. Tiles can be adjusted within approx. 1 hour of mixing.

In the case of mosaic tiles with paper or plastic on the front, apply Alfix C2 Epoxy onto the substrate using a notched trowel to achieve a uniform layer.

Subsequently, use the smooth edge of the trowel to flatten adhesive ribs and obtain a consistent and smooth surface.

Lightly tap the mosaic tiles into position with a float or similar tool.

Ensure there are no voids behind the tiles. Epoxy residues on tiles or mosaics can be removed using methylated spirits up to six hours after mixing. Mixing: Mix Part B with Part A. Use a stirrer with a slow electric drill and mix until the material is homogeneous.

NOTICE

Under special conditions there may be a need to add Alfix Tix agent to the Alfix C2 Epoxy:

- Inclined substrate
- Temperature conditions

Alfix Tix agent can be used as a thickener that increases the firmness of the adhesive and its load-bearing capacity with thicker layers.

Tix agent can be added in quantities from 0 g to a maximum of 300 g per 6.0 kg of Alfix C2 Epoxy. Usually adding 30 g (1 sachet) of Alfix Tix-agent per 6.0 kg Alfix C2 Epoxy will suffice.

Alfix C2 Epoxy can be used in most conditions, but in particularly challenging conditions the addition of more Tix agent may be required.

This should be decided on the basis of the task at hand.



Applying Alfix C2 Epoxy using a notched trowel



Back-buttering the tile with a thin coat



Fitting tiles onto the wet adhesive.

Epoxy mortar

When fitting e.g. finger grip tiles where there may be a need for a larger layer of adhesive, Alfix Epoxy Mortar can be used.

Alfix Epoxy mortar consist of Alfix C2 Epoxy added with 0.5% Alfix Tix (30 g) agent and 10% Alfix Quartz Sand Type 1 (0.3–0.7 mm) per 6 kg of Alfix C2 Epoxy.

If required, the dosage of quartz sand and Tix agent can be adjusted depending on the task on the construction site.

For more information contact our service-technical department.



Tiling of pool walls

Substrate

- PVC liner

Alfix NormalFix or Alfix ProFix with Alfix FlexBinder

Note that the liner membrane in the pool is only suitable for cladding with max. 1–2 rows of tiles below the waterline.

De-grease the liner using e.g. primer or methylated spirits and sand using sandpaper with grain 40–60 on a sanding block or by carefully using an eccentric grinder. The surface must be smooth and matt, with visible sanding tracks but without the surface being damaged.

Apply a contact layer of Alfix NormalFix or Alfix ProFix mixed with Alfix FlexBinder.

Thickness: Max. 1 mm.

Mixing: 0.4 l Alfix FlexBinder per kg of powder

The consistency can be adjusted with water.

Drying time before tiling: Approx. 2 days at +20°C.

Fit the tiles onto Alfix NormalFix or Alfix ProFix mixed with Alfix FlexBinder.

The mixing ratio is the same as stated above.

Use the double adhesive method (buttering - floating method), where the adhesive is applied to both the substrate and tiles.

Use a notched trowel to spread adhesive across the substrate; use the straight edge first and then the notched edge to create a ridged bed.

The trowel notch size is dependent on the size of the tile and it must be ensured that the correct amount of tile adhesive is applied.

Back-butter each tile with a thin layer and fit onto the wet adhesive.

The back of the tile should be completely covered without voids.

Check the adhesive coverage regularly.

Drying time before grouting: approx. 3 days at +20°C.



Fitting PVC liner



Sanding of PVC liner



Applying the contact layer



Back-buttering the tile with a thin coat



Fitting the tiles

Grouting of tiles in the pool

Choice of products

Product	Working time at +20°C	Joint widths	Walkability	Compressive strength
Alfix IndustryFuge - CeraFill 18 High-strength grout	1-2 hours	2-18 mm	24 hours	40 N/mm ²
Alfix C2 Epoxy 2-component system	Approx. 50 minutes	1.5-10 mm	16 hours	65 N/mm ²
Arbokol 1025	Approx. 45 minutes	6-20 mm	48 hours	60-70 Shore D

In general

Grouting can normally be carried out 2 days after the tiles were fitted.

The grouting must not have any adhesive, loose particles etc. in the tile's thickness.

The quality requirements for the grouting work must be set before the work is done. This is best achieved by grouting a test area of a suitable size, which after approval can be used as a quality benchmark for the rest of the grouting work.

In areas where there is always running water e.g. in connection with overflow channels, these places should always be grouted using epoxy, since the water movements will cause additional large mechanical loads on the grouting.

Elastic joints should in general be limited to joints where there are expected structurally related movement.

Expansion joints should not occur under water.

Working temperature: +10°C to +25°C.

Grouting of tiles in the pool

Alfix IndustryFuge - CeraFill 18

For the best result, apply Alfix IndustryFuge - CeraFill 18 with an epoxy grout float diagonally across the joints so that the grout is pressed completely into the bottom and the joints are completely filled. Once the grout has set after approx. 15–30 minutes, clean the surface using a well-wrung viscose sponge that is regularly rinsed in water. The joints must remain filled.

First, work diagonally until the joints look good and are even. Next, wash the tiles using the sponge. The joints must be filled and match the surface and uses of the tiles.

Usually, finished joints should not be washed out to a depth exceeding 1 mm.

For tiles with rounded edges, joints can be adapted to these.

Joints should neither be overfilled nor cover parts of the tiles.



Applying Alfix IndustryFuge - CeraFill 18



Joints must be filled completely



Wash the joints using a well-wrung viscose sponge.



Adjust the joints to match the tile design

NOTICE

Avoid as much as possible using acid treatment. To ensure complete curing and full strength, it is important to keep joints moist for the first 4–5 days. Curing time: Min. 14 days at +20°C and 50% RH before filling the pool.

Grouting of tiles in the pool

Alfix C2 Epoxy

Work Alfix C2 Epoxy well into the joints with the aid of suitable epoxy grout float or hard rubber-backed float.

Work diagonally across the joints and achieve a high degree of filling without voids.

Leave as little sealant as possible on the tile by holding the float or squeegee at an angle of approx. 60°.

It is important to keep float edges clean from material in order to avoid drawing sealant out of the joints.

Immediately after filling, begin cleaning off the excess grout. For cleaning use an abrasive pad and the smallest possible amount of lukewarm water possible, wipe over tiles with the pad.

Subsequently complete the cleaning off with a viscose sponge frequently soaked in lukewarm water.

Change the water for every 6 kg of mix used.

Avoid excess water in the joints. The wash water must be collected and treated in accordance with the municipal guidelines for water that contains epoxy remnants.

NOTICE

Under special conditions there may be a need to add Alfix Tix agent to the Alfix C2 Epoxy:

- Inclined substrate
- Temperature conditions
- Joint widths over 6 mm
- Deep joints

Use Alfix Tix agent as a thickener to increase the grout's load-bearing capacity and filling.

Tix agent can be added in quantities from 0 g to a maximum of 300 g per 6.0 kg of Alfix C2 Epoxy.

Usually adding 30 g (1 sachet) of Alfix Tix-agent per 6.0 kg Alfix C2 Epoxy will suffice.

Alfix C2 Epoxy can be used in most conditions, but in particularly challenging conditions the addition of more Tix agent may be required.

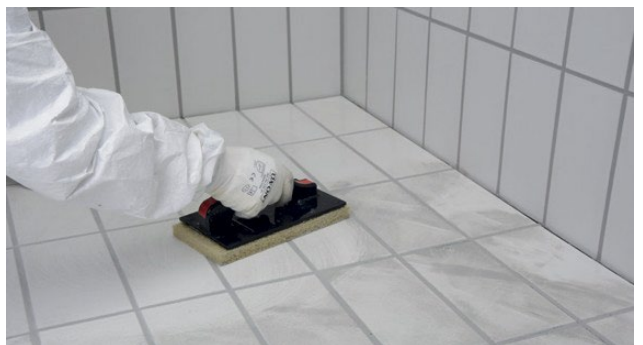
This should be decided on the basis of the task at hand.



Applying on wall using an epoxy grout float



Applying on floor using an epoxy grout float



Emulsifying/cleaning off using an abrasive pad



Washing using a viscose sponge

NOTICE

In the case of epoxy film forming, use FILA CR10. The final cleaning must be carried out at the earliest 5 hours and at the latest 15 hours after the grouting was done.

Grouting of tiles in the pool

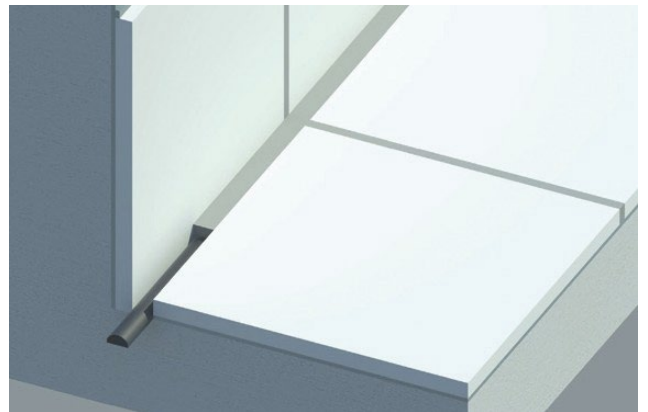
Elastic joints

Make sure that the adhesion surfaces are dry and clean. Vacuum clean and if required, de-grease using acetone or methylated spirits.

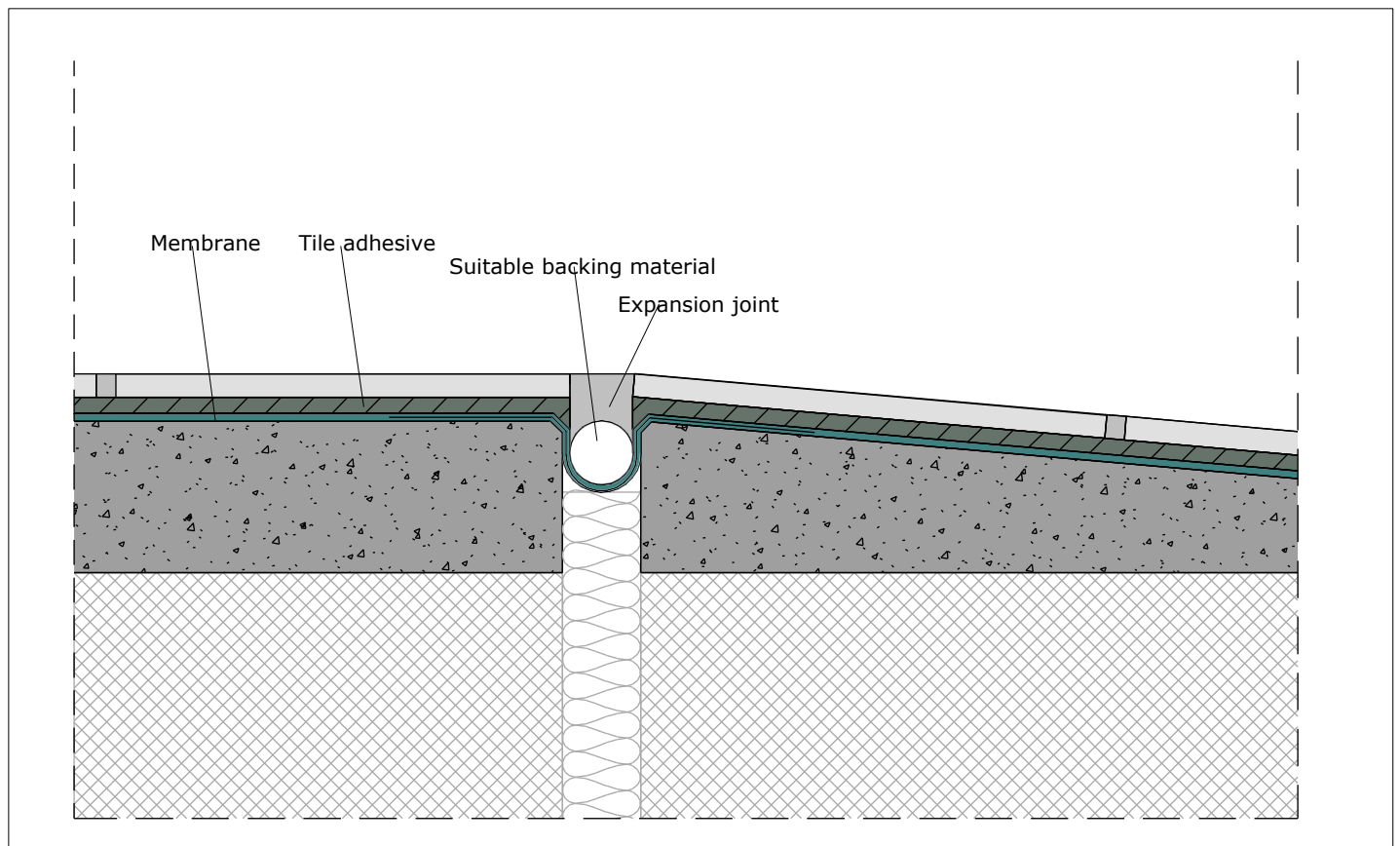
Prefill deep joints with a suitable backing material, such as polyethylene foam backer rod, to obtain appropriate depth.

Adhesion surfaces must constitute the entire tile thickness. The backing material must be suitable for the task. Apply masking tape along the tile edges.

The joints must be suitable for elastic sealant, such as Arbokol 1025. Refer to the manufacturer's website.



Backing material is fitted in the joints



Expansion joint

NOTICE

Remove the masking tape immediately after smoothing. Curing time: Min. 14 days at +20°C and 50% RH before filling the pool.

Operation, cleaning, maintenance

Filling and emptying the pool

After grouting, allow at least 14 days before filling up the pool with water. It is recommendable to fill an empty pool gradually, changing the water level by 30–50 cm per day.

Avoid as much as possible large temperature differences between the water and the substrate.

In general

Joints exposed to chemical and/or physical impact should be checked regularly and replaced if necessary to prevent further damage occurring.

Avoid as much as possible using high-pressure cleaning.

In the case of cleaning using high pressure, follow the following guidelines:

- Do not use water pressure greater than 6 bar. Ideally it must be even lower.
- Keep the nozzle at least 0.3 m from the surface.
- Spray at an angle of 30–60°.

For daily cleaning in bare feet areas, and in bathrooms and changing rooms, Alfix Marble Cleaner is recommended.

Use Alfix Marble Cleaner for the daily cleaning to prevent the formation of limescale deposits forming on surfaces. The product is well-suited for use on all washable surfaces, e.g. sanitation areas, mixer faucets, stainless steel, mirrors, etc.

Dosage: 1/4–1/2 dl to 10 l water.

Apply the solution using a cloth, sponge, sprayer or via a foam cleaning unit.

For firmly attached dirt on horizontal and vertical joints, the application time should be extended and the surface wiped with a brush or abrasive pad.

Limescale deposits can be removed using acidic products, such as Alfix Lime and Grout Remover which contains phosphoric acid/citric acid. The surface is rinsed off with clean water. Dilute the Alfix Lime and Grout Remover with water at a 1:5 - 1:10 ratio.

Apply the solution using a sponge. Avoid run marks. After an application time of 5–10 minutes, scrub the surface and then rinse off with clean water.



Do NOT use sulfamic acid such as Alfix Acid Wash in connection with filter units, pool water that contains chloride or products that contain chlorides.

When using acidic products you must ensure that any excess acid is neutralised using an alkaline agent e.g. Alfix Marble Cleaner.

Product overview

Alfix PlaneMix S40

Pool and concrete repair mortar

- For repair and reprofiling of walls and floors made of all concrete types
- Ideal for levelling/straightening in pools
- For interior and exterior use
- Shrinkage compensation system and fibre-reinforced
- High adhesion and compressive strength
- Excellent application properties
- Layer thickness 5–40 mm



Alfix PlaneMix ST 05

Self-levelling smoothing compound

- Suitable for all types of indoor and outdoor concrete structures, e.g. pools, columns and beams, floors, walls, etc
- Smoothing layer for Alfix PlaneMix R4 Rep
- Class R3 in accordance with EN 1504-3
- Effective corrosion protection of reinforcing steel
- Effectively limits the carbonatation of concrete structures
- For interior and exterior use
- Void filling
- Thin-coat finishing on balconies, stairways, ramps, etc.
- Low capillary absorption, waterproof
- Smooth and easy to apply
- Execution without primer
- Layer thickness 1–5 mm per layer



Alfix PlaneMix ST 05 Fluid

Polymer dispersion

- Binder component for Alfix PlaneMix ST 05 self-levelling smoothing compound
- For interior and exterior use
- Increases adhesion and strength of cement-based powder products
- Large resistance to ingress of salt, oils, chemicals, etc.



Alfix PlaneMix R4 Rep

Concrete repair mortar

- Suitable for repair of all types of indoor and outdoor concrete structures, e.g. pools, columns and beams, floors, walls, etc.
- Can be included in statics calculations for load-bearing structures
- Effective sealing of reinforcing steel
- Chloride-free
- High adhesive and compressive strength – Class R4 in accordance with EN 1504-3
- Very low capillary absorption, maximum protection against water, carbon dioxide and chlorides
- Fibre-reinforced, minimal formation of shrinkage cracks
- Layer thickness from 5–45 mm in one single operation



Alfix PlaneMix 25 exterior

Self-levelling smoothing compound.

- For levelling and smoothing subfloors
- Suitable for balconies, industrial floors, etc.
- For locations exposed to upcoming moisture
- For interior and exterior use
- Water and frost resistant
- For slope building
- Layer thickness 2–25 mm



Product overview

Alfix PlaneMix 100

Fast-setting screeding mortar.

- For levelling, smoothing and repairs of subfloors
- For interior and exterior use
- Semi-dry consistency
- Walkability after approx. 3 hours
- Ideal for renovation tasks
- Layer thickness 20–100 mm



Alfix PlaneMixPrimer

Primer for pre-treating concrete substrate.

- Regulates the substrate's absorbency and improves adhesion
- Ideal for smoothing layer
- For interior and exterior use
- Adheres to most substrates
- High waterproofing
- Low emission



Alfix 2K Sealing Membrane, grey

For waterproofing the substrate before fitting tiles.

- For interior and exterior use
- Crack bridging
- ETA-approved for wet rooms in accordance with ETAG 022
- For pools with a water depth of up to 15 m
- Complies with EN 14891 for use in pools
- Rapid setting
- Approved for radon protection



Alfix Epoxy Primer

Acid-resistant anchorage primer.

For pre-treatment and as moisture barrier prior to application of Alfix Epoxy Membrane.

- For interior and exterior use
- Efficient anchoring of substrate
- Highly chemical resistant
- As capillary break layer at embedded parts



Alfix Sand type 1

Grain size: 0.3–0.7 mm

Alfix Sand type 10

Grain size: 0.1–0.3 Consumption: Max. 8 kg per 5 kg set

Alfix Epoxy Membrane

Acid-resistant sealing compound.

- Effective waterproofing under ceramic tiles and quarry tiles in pools, barefoot areas, etc.
- For interior and exterior use
- Effective waterproofing under tiles
- Resistant to aggressive chemicals and high mechanical load



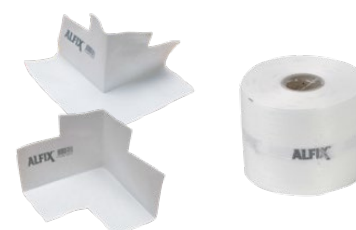
Alfix Sand type 2

Grain size: 0.7–1.2 mm

Alfix VT Accessories

VT sealing strip Waterproof laminated sealing strip that withstands chlorinated water.

VT internal and external corners Waterproof laminated corners



Product overview

Alfix ProFix

Flexible tile adhesive - Light.

- For ceramic and quarry tiles, mosaics and non-moisture-sensitive natural stone
- For large tiles and Porcellanato tiles
- For interior and exterior use
- Extra easy-flowing consistency for floors
- Rapid strength development
- Layer thicknesses up to 10 mm



Alfix NormalFix

- For ceramic and quarry tiles
- For interior and exterior use
- Smooth and easy to apply
- Suitable for swimming pools
- Suitable for wet rooms
- Layer thicknesses up to 5 mm



Alfix FlexBinder

For mixing with Alfix tile adhesive to obtain higher elasticity. Used on critical substrates such as wooden panels, vinyl, PVC fibreglass, steel, etc.

- For interior and exterior use
- Increases the flexibility of the adhesive
- Increases the adhesive's chemical resistance
- Provides high level of adhesion strength
- Ideal for use with PVC liner



Alfix C2 Epoxy

Acid-resistant industrial grout and adhesive.

- For adhesion and grouting of ceramic tiles, quarry tiles and mosaic tiles
- For interior and exterior use
- Suitable for e.g. pools, foodstuff and chemical industries
- Resistant to aggressive chemicals and high mechanical load
- Joint widths/layer thickness from 1.5–10 mm



Alfix Tix agent

Used as a thickener for Alfix C2 Epoxy in cases where special conditions apply, for example:

- Joint widths over 6 mm
- Deep joints / adhesive layer thickness
- Incline of substrate
- Temperature conditions
- Increases the load-bearing capacity of the adhesive
- Increases the filling of the joint



Alfix IndustryFuge - CeraFill 18

Cement-based high-strength grout

- For grouting of ceramic wall and floor tiles
- For areas subjected to high mechanical loads
- Suitable for car washes, commercial kitchens and swimming pools
- For interior and exterior use
- High mechanical strength
- Increased chemical resistance
- Tolerates high-pressure cleaning
- Joint widths from 2–18 mm







Alfix is a Danish family-owned business, established in 1963.

We will ensure peace of mind for the people who are building tomorrow's Scandinavia.

The company provides a wide range of products: Screed mortar, self-levelling compounds, wet room products, tile adhesives, grout, smooth rendering products, façade paint and other special products.

D K Dansk produktion & familieeje siden 1963



ALFIX A/S
H. C. Ørsteds Vej 11-13
6000 Kolding, Denmark

Tel.: +45 75 52 90 11
E-mail: alfix@alfix.dk
alfix.com

ALFIX[®]
Responsible strength