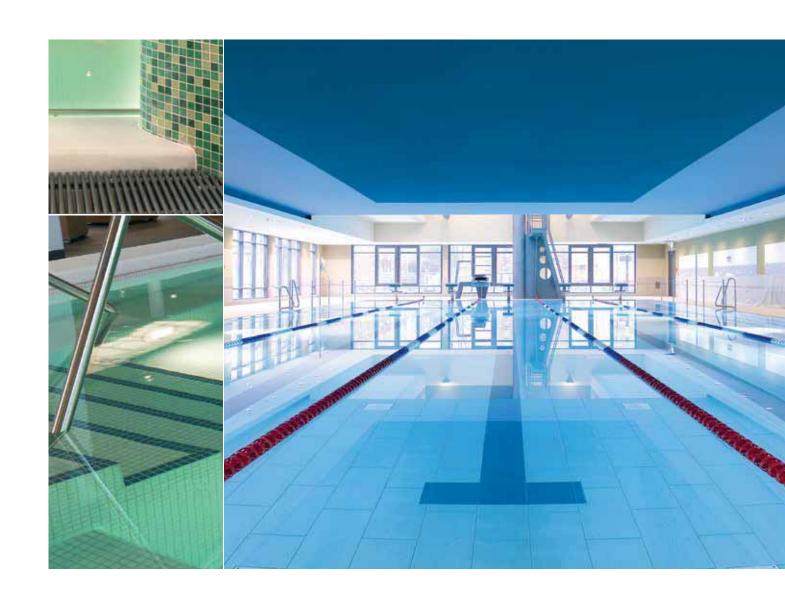
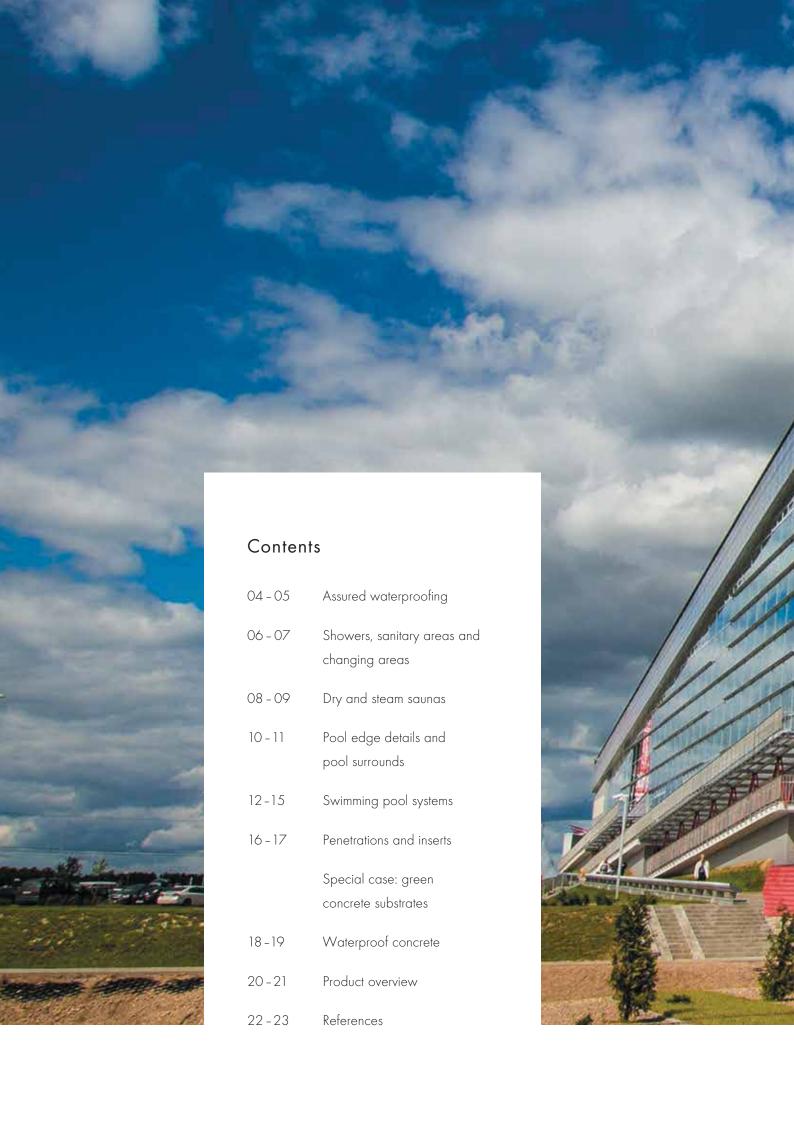
Assured tile installation in swimming pools and water parks









Lebjaschij Aqua park Minsk, Belarus

Assured waterproofing in swimming pools

Activities for remaining healthy are of great significance in our performance orientated society. For decades, swimming pools and water parks have been the most popular recreational places for the free time of all age groups.

The demands on this type of construction are constantly rising and international experiences in swimming pool construction show that reinforced concrete shells clad with ceramic tiles fulfil these requirements the best and most efficiently.

Swimming pools without water are like towns without people. Water is certainly falsely listed as the biggest enemy of each construction.

Without doubt, most damage is caused by water. The safest and most economical way to prevent moisture damage is to install a waterproof system in combination with tiles.

Tried and tested SCHOMBURG system construction products are available to waterproof in a wide variety of situations, even problematical areas and under heavy duty conditions, and to install the tiles selected.

SCHOMBURG offers complete solutions to waterproofing and tiling all areas of a swimming pool. Our systems are particularly renowned for their reliability and efficiency.







The thrill of ambitious leisure designs in adventure pools on your doorstep, sporting competitions in standardised Olympic pools and also recuperation in therapeutic pools, would lose much significance without ceramic tiles.

Waterproof membranes and tile adhesives are subjected to particularly high levels of intense exposure to water and essential hygiene. Effective planning without a systematic approach is almost impossible in the challenging world of swimming pool architecture. This means the highest measures of planning care and the use of tested and proven system based products as well as technically correct implementation.

A modern swimming pool is a complex of the most varied constructions and spatialities, specific to its functions:

- ▶ Changing rooms
- ▶ Communal showers and sanitary areas
- ▶ Swimming pool surrounds
- Pool shells with traditional water
- ▶ Salt water pools and thermal pools
- Saunas
- Quiet zones
- Technical rooms etc.







communal showers and sanitary areas

In commercial wet rooms requires particular types of waterproofing due to the large volume of water contact. The use of bonded waterproof membranes (including tile adhesives and tiles) protect all building components from moisture. All structural components (pipe penetrations, floor drains, shower mountings etc.) must be technically integrated into the waterproofing layer.

PRIMING	 Solvent free universal primer, resistant to water and alkalis Contact and bonding slurry for cement-based screeds 	ASO®-Unigrund ASOCRET-HB-flex
LEVELLING	Non-sag, cement-based, rapid hardening, polymer modified, low stress and creamy smoothing compound, 2-15 mm for walls	SOLOCRET-15
	Water repellent, rapid hardening screeding mortar with high strength	ASO®-EZ4-Plus
WATERPROOFING	▶ Flexible, mineral-based, vapour permeable waterproofing slurry for heavier duty use in interior and exterior areas Alternative: Hybrid waterproof membrane for critical applications (low temperatures and high humidity, work under time pressure)	AQUAFIN®-2K/M AQUAFIN®-2K AQUAFIN®-RS300
	Joint tape for bridging bay joints and connecting joints	ASO®-Joint-Tape-2000
TILE INSTALLATION	▶ Mineral-based, flexible thin-bed adhesive	SOLOFLEX
GROUTING / SEALING	 Rapid hardening, flexible grout, 3-20 mm joint width Silicone sealant for underwater areas 	ASO®-Flexfuge ESCOSIL®-2000-UW



changing areas

Each swimming pool begins and ends with the changing area. There are not such high levels of moisture exposure here compared with the usual swimming pool areas but it can, however, be described as a wet area. The amount of water carried from the pool shell into the changing area by bathers is not to be underestimated. The chosen bonded tile system must survive the daily cleaning regime for the floor, the cleaning chemicals and pressure washing, without causing damage.

PRIMING	 Solvent free universal primer, resistant to water and alkalis Contact and bonding slurry for cement-based screeds 	ASO®-Unigrund ASOCRET-HB-flex
LEVELLING	Non-sag, cement-based, rapid hardening, polymer modified, low stress and creamy smoothing compound, 2-15 mm for walls	SOLOCRET-15
	Rapid hardening screeding mortar with high strength, foot traffic after 6 hours, install tiles after 3 days	ASO®-EZ2-Plus
WATERPROOFING	▶ Flexible, mineral-based, vapour permeable waterproofing slurry for heavier duty use in interior and exterior areas Alternative: Hybrid waterproof membrane for critical applications (low temperatures and high humidity, work under time pressure)	AQUAFIN®-2K/M AQUAFIN®-2K AQUAFIN®-RS300
	▶ Joint tape for bridging bay joints and connecting joints	ASO®-Joint-Tape-2000
TILE INSTALLATION	▶ Mineral-based, flexible thin-bed adhesive	SOLOFLEX
GROUTING / SEALING	 Rapid hardening, flexible grout, 3-20 mm joint width Silicone sealant for underwater areas 	ASO®-Flexfuge ESCOSIL®-2000-UW



dry saunas

Finnish sauna · tepidarium · laconium

The sauna landscape consists of a variety of areas (e.g. dry saunas, showers and other wet rooms), which are subjected to different levels of exposure. The waterproofing and tiling systems must therefore be matched to the particular type of exposure. In a commercially used dry sauna, a high quality waterproof membrane is essential. In this case the waterproofing membrane bonded with the tiles, should be able to resist the high temperatures and regular cleaning without being damaged. A mineral-based waterproofing and tiling system can be used here.

PRIMING	 Solvent free universal primer, resistant to water and alkalis Contact and bonding slurry for cement-based screeds 	ASO®-Unigrund ASOCRET-HB-flex
LEVELLING	Non-sag, cement-based, rapid hardening, polymer modified, low stress and creamy smoothing compound, 2-15 mm for walls	SOLOCRET-15
	 Water repellent, rapid hardening screeding mortar with high strength 	ASO®-EZ4-Plus
WATERPROOFING	▶ Flexible, mineral-based, vapour permeable waterproofing slurry for heavier duty use in interior and exterior areas Alternative: Hybrid waterproof membrane for critical applications (low temperatures and high humidity, work under time pressure)	AQUAFIN®-2K/M AQUAFIN®-2K AQUAFIN®-RS300
	▶ Joint tape for bridging bay joints and connecting joints	ASO®-Joint-Tape-2000
TILE INSTALLATION	▶ Mineral-based, flexible thin-bed adhesive	SOLOFLEX
GROUTING / SEALING	Cement-based, water impermeable grout with enhanced mechanical and chemical resistance for joint widths	HF05-Brillantfuge
	Silicone sealant for underwater areas	ESCOSIL®-2000-UW



steam saunas

Russian Banya · Turkish Hamam · Caldarium Kraxen stove bath · Roman bath

Due to the high demands from steam in a steam sauna, the waterproof membrane and the installation system must additionally have a vapour barrier function, in order to protect water sensitive building components such as e.g. building panels in polystyrene from becoming damp from water vapour. In commercial steam saunas, this can only be achieved with reaction resin systems. Waterproofing and tiling in private steam saunas, which are only occasionally used, can be carried out with mineral-based systems as in dry saunas.

PRIMING	Epoxy resin-based vapour barrier for floors/walls and overhead areas	INDUFLOOR®-IB1240/1245
	Contact and bonding slurry for cement-based screeds	ASOCRET-HB-flex
LEVELLING	Non-sag, cement-based, rapid hardening, polymer modified, low stress and creamy smoothing compound, 2-15 mm for walls	SOLOCRET-15
	Water repellent, rapid hardening screeding mortar with high strength	ASO®-EZ4-Plus
WATERPOOFING	Two component, solvent free, pigmented polyurethane resin. Elastic, with crack-bridging properties and good chemical resistance	ASOFLEX-AKB-Floor/Wall
	▶ Joint tape for bridging bay joints and connections	ASO®-Joint-Tape-2000
TILE INSTALLATION	Chemical resistant bonding and grouting based on epoxy resin, pigmented, VOC free, water vapour impermeable	ASODUR®-Design
GROUTING / SEALING	Chemical resistant bonding and grouting based on epoxy resin, pigmented, VOC free, water vapour impermeable	ASODUR®-Design
	Silicone sealant for underwater areas	ESCOSIL®-2000-UW

Pool edge detail systems and pool surrounds

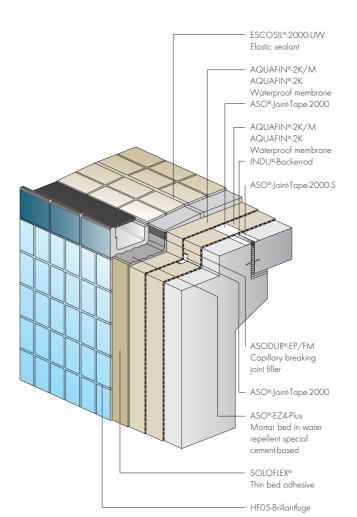
Pool edge construction differs between high lying and low lying water levels. The pre-formed sections, whether channel linings or installed edging units, of the pool edge detail are a fundamental component of the pool shell hydraulics and water treatment.

The pool edge construction with high lying water levels offers a good perspective when swimming and 'beach characteristics'. They have no disruptive reflected waves and there can be no alarmingly unhygienic contamination deposited on the pool walls above the water level. Edge

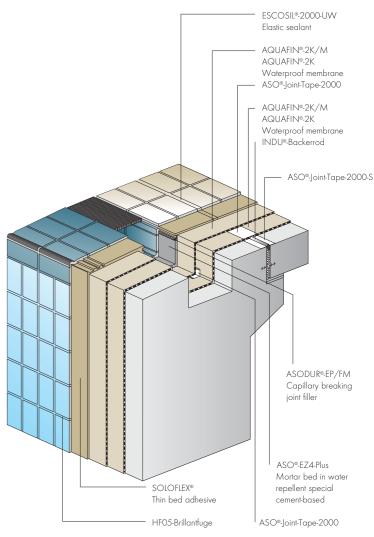
detail construction with high lying water levels differs between vertical (e.g. Wiesbaden overflow channel) and sunken (e.g. Finnish overflow channel) boundaries.

A successful combination of overflow channel with high water levels and a pool shell with low lying water levels is depicted with therapy pools. In these cases, the pool surrounds are situated lower than the water level. The pool edge is constructed with a Wiesbaden overflow channel with high water levels but with a recessed inner edge.

The high level Wiesbaden overflow channel



Finnish overflow channel





swimming pools (with traditional water)

In order to prevent bathing water from penetrating the levelling coats and concrete structure of a swimming pool shell, suitable and approved waterproofing systems are used in a bonded system with the surface finishes. Before installing stone and ceramic finishes, the pool shell construction is to be tested for water tightness. The testing is carried out by a trial filling, for a duration of 14 days, with chlorinated water up to the upper edge of the pool edge detail. The minimum age of the concrete substrate is, as a rule, 6 months before tiling.

PRIMING	Mineral-based corrosion protection and adhesion promoter for INDUCRET®-BIS-5/40	INDUCRET®-BIS-0/2
	Contact and bonding slurry for cement-based screed	ASOCRET-HB-flex
LEVELLING	2 ▶ Cement-based repair mortar 5-40 mm	INDUCRET®-BIS-5/40
	Water repellent, rapid hardening screed mortar with high strength	ASO®-EZ4-Plus
WATERPROOFING	3 ▶ Flexible, mineral-based, vapour permeable waterproofing slurry for	AQUAFIN®-2K/M
4	heavier duty use in interior and exterior areas Alternative: hybrid waterproof membrane for critical applications (low temperatures and high humidity, work under time pressure)	AQUAFIN®-2K AQUAFIN®-RS300
	5 Special joint tape for increased requirements and heavy duty use	ASO®-Joint-Tape-2000-S
	6 > Special waterproof pre-formed pieces	ASO®-Joint-Sleeve-Floor
TILE INSTALLATION	7 Mineral-based, flexible thin-bed adhesive	SOLOFLEX
GROUTING/ SEALING	Cement-based, water impermeable grout with enhanced mechanical and chemical resistance for joint widths of 3 - 20 mm	HF05-Brillantfuge
	Silicone sealant for underwater areas	ESCOSIL®-2000-UW
	9 Internal joint sealing (details see page 19)	
	Capillary breaking joint (details see page 15)	

System build up in the pool

Example: swimming pool with traditional water







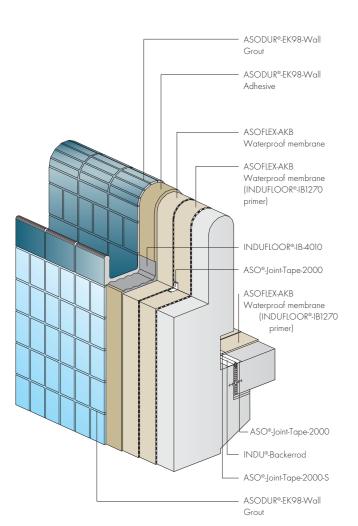
swimming pools (with brine water)

In addition to pools filled with traditional bathing water, brine water pools and their surrounds are subjected to chemical exposure from minerals and salts. Waterproof membranes and adhesives used in these areas must be resistant to them. The optional use of a conductive strip and a conductive coating between primer and waterproofing membrane gives the possibility of testing the waterproofing membrane for water tightness without destruction using a spark coil test under high voltage, so that the time-consuming and costly assessment of pool waterproofing via the 14 day trial filling with water can be dispensed with. In this case our **DENSARE®-2002** system is used.

PRIMING	■ Universal primer based on epoxy resin, low viscosity	INDUFLOOR®-IB1270
LEVELLING	12 ▶ Epoxy resin based repair mortar	INDUFLOOR®-IB4010
WATERPROOFING	 Self adhesive copper conductive strip (for control level, optional) Aqueous conductive coating based on epoxy resin (for control level, optional) Special waterproof tape for higher requirements and heavy duty Special waterproof pre-formed pieces 2 component, solvent free, pigmented polyurethane resin. Elastic, with crack-bridging properties and good chemical resistance, blue and grey 	INDU®-ConductiveStrip INDUFLOOR®-IB2115 ASO®-Joint-Tape-2000-S ASO®-Joint-Sleeve-Floor ASOFLEX-AKB-Floor/Wall
TILE INSTALLATION	▶ Chemical resistant bonding and grouting based on epoxy resin, pigmented, VOC free, water vapour impermeable ▶ Epoxi-based tiling adhesives and jointing mortar for wall areas	ASODUR®-Design ASODUR®-EK98-Wall
GROUTING / SEALING	 Chemical resistant bonding and grouting based on epoxy resin, pigmented, VOC free, water vapour impermeable Silicone sealant for underwater areas Internal joint sealing (details see page 19) Capillary breaking joint (details see page 15) 	ASODUR®-Design ESCOSIL®-2000-UW

The installation of pool edge tiles and pre-formed units on to the pool edge is particularly well proven with the hydrophobic screed and bedding mortar, ASO®-EZ4-Plus, in external pools. The risk of frost damage, which is very high at the pool edge detail in external pools, is considerably reduced through the mortar's special properties, when correctly installed without voids.

Therapy pools (brine pools)



Capillary breaking joint

The water level lies higher or at least at the same surface level as the ceramic tiling on the pool surround. This causes capillary water pressure, which leads to water in the floor construction of the pool surround if planning and implementation is not carried out properly or technically correct.

The problem is solved by a special capillary breaking joint which prevents capillary water transportation. A safe and effective design for such a joint is guaranteed through the use of ASODUR®-EP/FM - a product which was specially developed for this purpose.

Pool surrounds

The pool shell construction is to be structurally separated from the other load-bearing constructions of a swimming pool. An optimum solution is e.g. the simple support of the pool surround on the pool shell. A movement joint is incorporated at the jointing point. In the course of the waterproofing measures, the joint is waterproofed with ASO®-Joint-Tape-2000-S and the associated pre-formed pieces. It is to be noted that the position of the expansion joint at a width of 10–20 mm is determined by the Structural Engineer and appropriately allowed into the structural calculations. There are usually various plant rooms beneath the pool surround which are to be protected from water. When selecting a waterproofing system for the pool surround presume the same demands as for the associated pool shell.

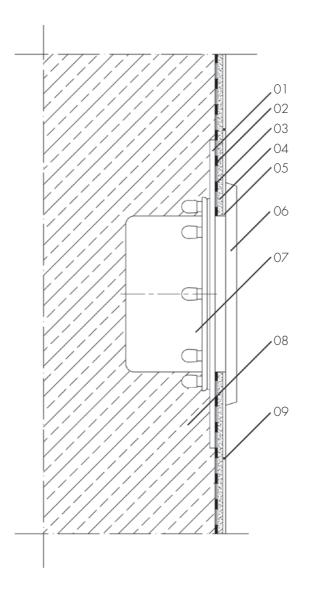




Waterproofing

penetrations and inserts

Inserts with an adhesive flange of approx. 5 cm in width have proven themselves for the assured waterproofing of penetrations and fixing points. In the ideal case, such inserts are allowed for during planning and are already present in the design plans. During concrete works, they are simply inserted into the body of the concrete. Waterproofing such inserts is easy, quick and secure – after bonding the ASO®-Joint-Sleeve, the waterproof membrane is applied and overlapped onto the flange.



TRADITIONAL WATER

01 Flange

02 ASO®-Joint-Sleeve-Floor

03 ▶ AQUAFIN®-2K/M, AQUAFIN®-2K or AQUAFIN®-RS300

04 ▶ SOLOFLEX

05 ▶ Tiles

06 ▶ Cover

07 Light housing

08 Description Concrete shell

09 > HF05-Brillantfuge

BRINE WATER POOL / THERMAL WATER

01 ▶ Flange

02 ASO®-Joint-Sleeve-Floor

03 ASOFLEX-AKB-Wall

04 ASODUR®-EK98-Wall

05 ▶ Tiles

06 ▶ Cover

07 Light housing

08 Concrete shell

09 ▶ ASODUR®-Design



Special case

Tile installation in pools on green concrete substrates

(Pool shell age > 28 days < 6 months)

In standard methodology, tile installation in swimming pools cannot be carried out before 6 months after completion of the concreting works (dependent on ambient conditions and pool shell construction even later). There is a particular problem with installing tiles on green concrete, which is younger than 6 months. Concrete shrinkage is still very intense in this period and not complete by a long way. Consequentially considerable deformation and the appearance of micro-cracks are noticeable. The use of an elastic waterproof membrane together with the highly elastic tile adhesive, UNIFIX®-2K is an effective and safe solution.

WATERPROOFING	▶ Flexible, mineral-based, vapour permeable waterproofing slurry for heavier duty use in interior and exterior areas	AQUAFIN®-2K/M AQUAFIN®-2K
TILE INSTALLATION	▶ 2 component, water impermeable, frost resistant flexible adhesive for tiled finishes under high stresses	UNIFIX®-2K
GROUTING / SEALING	 Rapid hardening, flexible grout, 3-20 mm joint width Silicone sealant for underwater areas 	ASO®-Flexfuge ESCOSIL®-2000-UW



Special case

Swimming pool shell as a waterproof concrete "white tub"

A 'white tub' is concerned with a swimming pool construction in concrete with increased resistance to water penetration. The concrete undertakes additional waterproofing measures having a load-bearing function as well as a waterproofing one. All structural elements (construction joints, penetrations, fixing points etc.) are also waterproof through special measures, so that, as a rule, no additional measures are necessary.

Planning and execution

Valuable and useful information and requirements are available from the German waterproofing guidelines from the DAfStb. When planning and carrying out works on a swimming pool as a 'white tub' use wet duty class 1 (water under pressure).

Utilization class A (no areas of moisture allowed) or B (areas of moisture allowed) are to be agreed for each case with the client.

Pool shell concrete

There are particularly high demands placed on the concrete: min. C25/30, w/c <0.55; t_{wall} \geq 240 mm; t_{floot} \geq 250 mm; w_{crock} \leq 0.2 mm or \leq 0.1 mm (dependent on utilization class). No concrete additives for crystalline waterproofing of the concrete shell are allowed.

High performance super plasticizers and mould release agents from SCHOMBURG help to fulfil the high demands.

REMICRETE-SP10

High performance super plasticizer

BLANKOL-LF

Universal release agent for all types of mould



Construction joints with pipe injection system

The pre-installation of PVC custom made injection pipes have proven to be an efficient system for waterproofing construction joints. In this way, it is possible to quickly and simply waterproof the concrete by injecting an injection resin, which disperses throughout the entire joint and potential defective areas in the concrete.

AQUAFIN®-CJ1

Injection pipe for waterproofing construction joints in concrete

AQUAFIN®-P1

Injection resin for waterproofing water bearing cracks

AQUAFIN®-P4

Elastic polyurethane injection resin

Waterproofing construction joints with a water bar

Treating construction joints with a water bar is a convenient but very safe possibility for waterproofing inner lying joints. The expansion of the jointing strip INDU-FLEX-CJ13 (up to 1100%) starts approx. 6 hours after contact with water and is reversible.

INDU-FLEX-CJ13

Expanding and jointing water bar for waterproofing construction joints



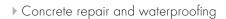
Product overview

AQUAFIN®-2K/M AQUAFIN®-2K	PROPERTIES ▶ 2 component, flexible, cementitious mineral-based waterproofing slurry for new and existing buildings, channels and swimming pools
AQUAFIN®-RS300	Rapid hybrid waterproof membrane for new and existing buildings, channels and swimming pools, can be tiled after 4 hours
AQUAFIN®-CJ1	Injection pipe for the injection of all suitable injection resins, gels as well as acrylates, resistance to water under pressure
AQUAFIN®-P1	▶ 1 component, PU injection resin for waterproofing water bearing cracks and joints, ready to use
AQUAFIN-®P4	▶ 2 component, elastic PU injection resin for waterproofing cracks and joints using the pipe injection method
ASOCRET-HB-Flex	▶ Contact and bonding slurry for cement-based screeds
ASO®-Joint-Tape-2000	▶ Joint tape for normal use
ASO®-Joint-Tape-2000-S	▶ Special joint tape for high demands and heavy duty use
ASO®- Joint-Sleeve-Floor	▶ Pre-formed piece from the ASO®-Joint-Tape system for waterproofing floor drain outlets
ASODUR®-Design	▶ Fine epoxy grout and adhesive, for joint widths from 1-7 mm, available in various colours
ASODUR®-EK98-Wall	▶ Adhesive and grout, for joint widths from 3 - 15 mm
ASODUR®-EP/FM	▶ 2 component reaction resin anchoring grout
ASO®-EZ2-Plus	▶ Rapid hardening pre-blended factory produced mortar with high strength
ASO®-EZ4-Plus	▶ Rapid hardening, water repellent pre-blended factory produced mortar
ASO®-Flexfuge	▶ Polymer modified grout – rapid hardening, for joints from 3–20 mm wide, available in various colours
ASO®-Unigrund-GE	▶ Ready to use, solvent free primer, coloured green
ASO®-Unigrund-K	▶ Solvent free primer concentrate, transparent or blue

ASOFLEX-AKB-Floor	2 component, solvent free, pigmented PU waterproofing membrane for use bonded to floors together with tiled finishes	
ASOFLEX-AKB-Wall	2 component, solvent free, pigmented PU waterproofing membrane for use bonded to walls together with tiled finishes	
BLANKOL-LF	▶ Universal release agent for all types of mould	
ESCOSIL®-2000-UW	Elastic, 1 component joint sealant based on silicone rubber, highly fungicidal, for the elastic jointing of movement and structural joints in underwater areas such as e.g. swimming pools	
HF05-Brillantfuge	▶ High strength, flexible, cement-based grout for joints from 3-20 mm wide, available in 2 grey tones	
INDU-FLEX-CJ13	▶ Thermoplastic expanding and jointing strip for waterproofing construction joints	
INDU®-Backerrod	▶ Round profile, closed-cell backfill material for flexible joint sealants.	
INDU®-ConductiveStrip	▶ Copper conductive strip for producing a control level in conductive waterproofing and floor coating systems	
INDUCRET®-BIS-0/2	▶ Mineral-based corrosion inhibitor and bonding slurry for INDUCRET®-BIS-5/40	
INDUCRET®-BIS-5/40	▶ Cement-based repair mortar, 5–40 mm	
INDUFLOOR®-IB1240	▶ Oil and vapour barrier, low solvent, moisture tolerant, 2 component epoxy resin for floors	
INDUFLOOR®-IB1245	Dil and vapour barrier, low solvent, moisture tolerant, 2 component epoxy resin for walls and overhead areas	
INDUFLOOR®-IB1270	▶ 2 component epoxy resin primer, solvent free, low viscosity	
INDUFLOOR®-IB2115	Aqueous conductive coating for producing control levels in conductive waterproofing and floor coating systems	
INDUFLOOR®-IB2360	Aqueous concrete sealer, free from organic solvents, use as a primer and sealer	
INDUFLOOR®-IB4010	▶ 2 component epoxy resin repair mortar	
REMICRETE-SP10	▶ High performance super plasticizer	
SOLOCRET-15	Non-sag, rapid hardening smoothing compound, suitable for swimming pool construction, for thicknesses from 2–15 mm in one layer	
SOLOFLEX	▶ Flexible, thin and medium bed adhesive: DIN 12004, C2 TE; suitable for vitrified, earthenware, fully vitrified tiles, clinker, mosaic and natural stone materials, which are not sensitive to discolouration and not translucent	
UNIFIX®-2K	2 component flexible adhesive, water impermeable, frost resistant: DIN 12004, C1TE S2; suitable for the thin-bed installation of vitrified, earthenware, fully vitrified tiles, clinker, mosaic and natural stone materials, which are not sensitive to discolouration and not translucent	

References

LEBJASCHIJ AQUAPARK, MINSK, BELARUS







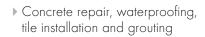
GRAFT THERME, DELMENHORST, GERMANY

▶ Concrete repair, waterproofing, tile installation and grouting





LAURA MOUNTAIN RESORT, SOCHI, RUSSIA







REHABILITATION CENTRE, LUXEMBOURG

Waterproofing





The SCHOMBURG Group develops, produces and markets high quality building product systems for

- Construction waterproofing
- Construction restoration
- Tiles/natural stone installation
- Screed installation
- Civil engineering
- Surface protection
- Concrete technology

SCHOMBURG is recognised for its development competency and is distinguished both nationally and internationally with over 75 years in the market. System based construction products from its own production plants are held it high esteem throughout the world.

Industry professionals value the level of service provided by the SCHOMBURG Group, along with our large range of high quality products.

In order to stay at the forefront of a continuously advancing market we are always investing in research and development of new and current products. This guarantees high quality products, which in turn leads to customer satisfaction.



SCHOMBURG

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