

CONCRETE PROTECTION

Longer service life
for reinforced
concrete buildings





Corrosion protection through chemically resistant plastics

Reinforced concrete is the material of the 20th and 21st centuries. But as robust as reinforced concrete may seem, water and chemicals often find a way to infiltrate the reinforcement, thus compromising the stability of structures. AGRUSAFE concrete protective liners made of chemically resistant plastics prevent concrete corrosion effectively and therefore extend the life of structures. They are ideal for buildings with high groundwater pressure or strict environmental requirements.

EFFECTIVE PROTECTION AGAINST CONCRETE CORROSION

through firmly sealed surfaces

Reinforced concrete remains new for many years

- thanks to the completely sealed welded lining
- due to the unique, patented anchoring in the concrete
- thanks to the simple visual indication of mechanical damage provided by an optional signal layer

SOLUTIONS FOR EVERY REQUIREMENT

thanks to the wide range of materials (PE, PP, PVDF, ECTFE)

Suitable for any concrete structure

- as they are suitable for both cast-in-situ application and prefabricated concrete products
- as they can be used across a wide temperature range
- including renovated and new construction

UNSURPASSED COST EFFICIENCY

thanks to easy installation and outstanding product quality

Particularly time- and cost-saving thanks to

- the ergonomic induction welding process
- large-format, project-specific sheet and roll formats
- the lined concrete surfaces being maintenance-free to a large extent

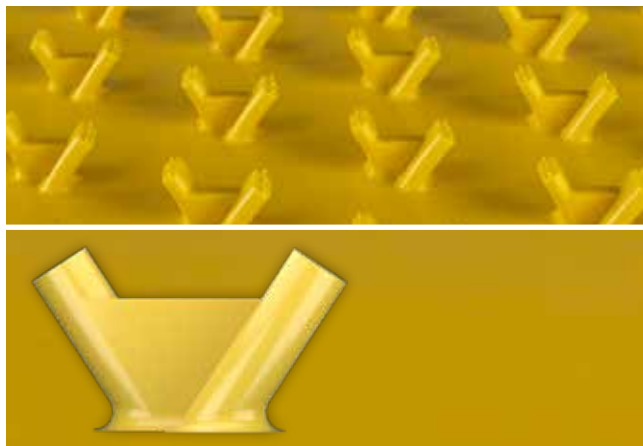
SUITABLE FOR POTABLE WATER RESERVOIRS

HYDRO^{CLICK} and HYDRO⁺ meet hygiene and potable water requirements

AGRU PE 80 blue concrete protective liners for the supply of potable water

- are plasticiser-free and chlorine-resistant up to 3 mg/l
- ensure that linings last for years
- enable optimum leakage monitoring in potable water tanks

Concrete protection system



AGRU-ULTRA GRIP MADE OF PE & PP – FOR ENHANCED RESISTANCE TO GROUNDWATER PRESSURE

AGRU-Ultra Grip's conical stud design ensures the ultimate grip in concrete. By means of the newly developed AGRU-Ultra Grip concrete protective liner, groundwater pressures of up to 1.75 bar (at 20 °C) can be permanently resisted. In large buildings, installation is even faster and cheaper. By using the sheets of 5 m in width, which are also available from AGRU, the number of welds can be reduced by up to 60% that would normally be necessary.

PRODUCT RANGE AGRU-Ultra Grip

Material	thicknesses
PE black/white	2.0 mm – 5.0 mm
PE yellow	2.0 mm – 5.0 mm
PE black	2.0 mm – 12.0 mm
PE agate grey	2.0 mm – 5.0 mm
PE-el black	3.0 mm – 5.0 mm
PPR grey	3.0 mm – 8.0 mm
PP black	3.0 mm – 5.0 mm



AGRU-SURE GRIP MADE OF PVDF & ECTFE FOR MAXIMUM CHEMICAL RESISTANCE

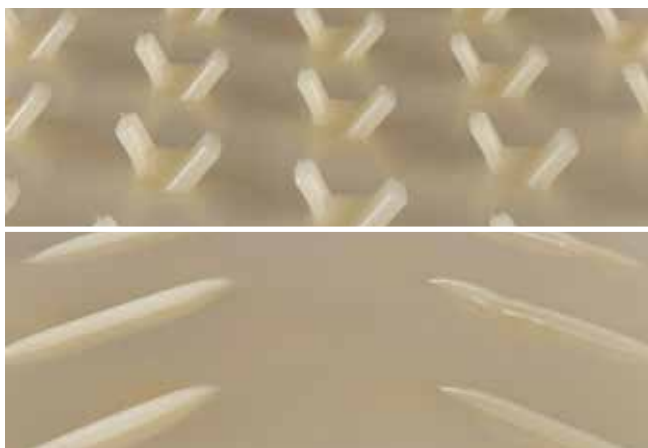
AGRU-Sure Grip's design and chemical resistance mean it can be used for years. Depending on how it is going to be used, it can be supplied in the extremely chemically resistant PVDF-FLEX and ECTFE. 420 studs/m² ensure generous anchor stud spacing and therefore guarantee safe installation in coarse concrete with grains size up to 25 mm.

PRODUCT RANGE AGRU-Sure Grip

Material	thicknesses
PVDF-FLEX natural	4.0 mm
ECTFE natural	2.5 mm

Special colours are available on request.





BIONIC – THE SHEET WITH THE LOTUS EFFECT

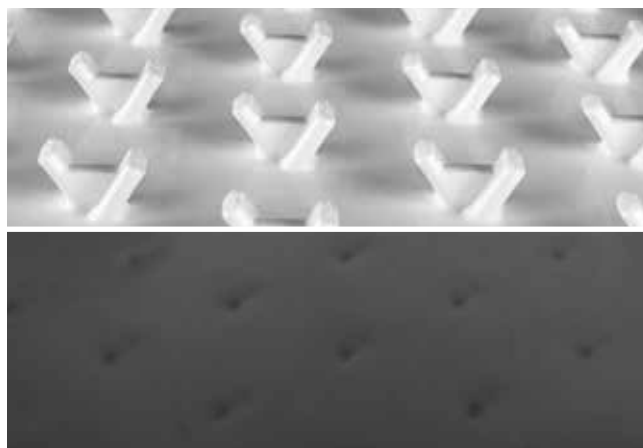
AGRU has perfectly imitated the „lotus effect“ seen in nature with its self-cleaning concrete protection system Bionic. The self-cleaning effect is present when flow rates are low. In sewers, this ensures that things flow smoothly without leaving behind deposits and therefore prevents deposits from building up and causing blockages. The formation of biogenic hydrogen sulphide is significantly less, which reduces odours in sewers significantly. Elaborate and costly maintenance work is a thing of the past with Bionic.

Sand and fatty deposits are a major problem in sewers. The Bionic concrete protective liner made by AGRU has a surface structure that causes turbulence in the wastewater being transported. The solids are therefore constantly in motion in the media flow and are transported onward.

PRODUCT RANGE BIONIC

Material	thicknesses
PE yellow	2.0 mm – 3.0 mm

Special colours are available on request.



AGRU-ULTRA GRIP WITH A SIGNAL LAYER

- Light signal layer so damage can be detected visually
- Improved installation due to the white, reflective layer for optimal flatness on the formwork
- Signal layer for detecting abrasion behavior based on the duration of operation in canals, tunnels, or shafts

PRODUCT RANGE AGRU-ULTRA GRIP WITH SIGNAL LAYER

Material	thicknesses
PE black/white	2.0 mm – 5.0 mm

Special colours are available on request.



AGRU-MINI GRIP – CORROSION PROTECTION IN PIPES

This new product by AGRU makes linings with very low wall thicknesses of 1.65, 1.80 or 2.00 mm possible. This low-cost variant in the AGRU concrete protective liner range provides excellent anchoring in concrete thanks to its large number of studs, but offers reduced ground-water pressure resistance due to the low sheet thicknesses. It is suitable for use in prefabricated concrete pipes and is exclusively for corrosion protection.

PRODUCT RANGE AGRU-MINI GRIP

Material	thicknesses
PE yellow	1.65 mm – 2.0 mm

Special colours are available on request.



TEAR OFF PROFILE

AGRU Tear Off Profiles made of electrically conductive HDPE are used for the secure fixing of concrete protective liners to the formwork. They enable simple and efficient installation and prevent the ingress of cement slurry during the concreting process.

A further advantage is the possibility of leak testing after welding using a spark tester, ensuring reliable quality control.

After removal of the formwork, the flat side of the profile can be cleanly separated along an integrated predetermined breaking point. This allows the execution of a continuous and homogeneous weld seam.

PRODUCT RANGE TEAR OFF PROFILE

Material	thicknesses
PE 100-el black	2.0 mm – 5.0 mm



END PROFILE

AGRU End Profiles are used to ensure a secure and proper termination of concrete protective liners. These are fitted onto the concrete protective liner and embedded in the concrete during the concreting process.

After concreting, the transition area is sealed by extrusion-welding. The weld seam is subsequently tested using a spark tester to ensure leak-tight joints.

The End Profile reliably prevents fluid ingress behind the liner between the concrete structure and the concrete protective liner, even in the case of rising water levels, thereby contributing to the long-term leakproofness of the system.

PRODUCT RANGE END PROFILE

Material	thicknesses
PE black	2.5 mm – 3.0 mm 3.5 mm – 5.0 mm
PP black	3.5 mm – 5.0 mm



WATERSTOP PROFILE

AGRU Waterstop Profiles made of VLDPE are suitable for use as terminations, connection profiles and transition profiles in concrete structures.

The profiles are available in different designs and allow application-specific selection depending on structural requirements. Variants with 2, 3, 4 or 6 ribs are available, as well as special expansion joint Waterstop Profiles.

This variety provides flexible and reliable solutions for permanently leakproof and secure connections in concrete structures.

PRODUCT RANGE WATERSTOP PROFILE

Material	thicknesses
2-ribs	120 mm
3-ribs	250 mm
3-ribs	500 mm
4-ribs	240 mm
6-ribs	500 and 600 mm
6-ribs	500 mm with expansion joint



Inspection 2025

Video



HYDRO^{CLICK} / HYDRO⁺

HYDRO^{CLICK} impresses with a patented installation system that is ideal for renovating water tanks. Time and costs can be significantly reduced by installing a lining directly on top of an old lining (however soft linings such as rubber linings must be removed).

HYDRO⁺ is ideal for lining new and existing potable water tanks and is 100 % free of plasticisers. Its patented conical stud design increases the pull-out strength and resists pressure and temperature fluctuations.

LOW-COST REFURBISHING WITH HYDRO^{CLICK}

Older water reservoirs no longer comply with today's stringent quality requirements. HYDRO^{CLICK} offers an easy-to-install lining system for the interior refurbishment of reservoirs. For the installation, the click profiles are fastened mechanically without a lot of time having to be spent cleaning the tank beforehand. This is followed by clicking the HYDRO^{CLICK} sheets into place. Extrusion welding ensures that the sheet joints are 100 % leak-proof.

HYDRO^{CLICK} – MORE THAN A RENOVATION

The renovation of this historic water tower was carried out using HYDRO^{CLICK}. The advantage of HYDRO^{CLICK} is that it can be installed directly on top of an existing lining. This saves time and money. Thanks to the high quality of the sheets, this solution is more durable, more suitable for potable water applications, and more hygienic than any protective coating.



HYDRO⁺ – 100 % PLASTICISER-FREE

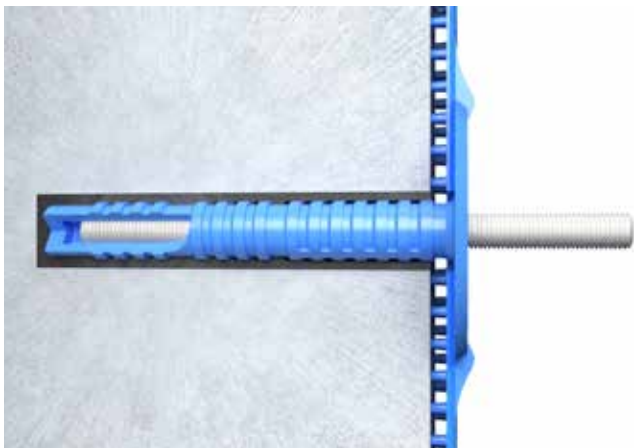
HYDRO⁺ is resistant to chlorine up to a maximum of 3 ppm. This makes this concrete protective liner ideal for potable water reservoirs being lined for the first time. Both site-mixed concrete and prefabricated concrete structures can therefore be equipped with it.

HYDRO⁺ – PERFECT FOR NEW BUILDING WORK

HYDRO⁺'s special stud design, which is extruded as a single piece with the sheet, buries itself into concrete and creates a rock-solid bond. In the potable water sector in particular, the material also plays an important role. Unlike solutions made of PVC and chemical coatings, HYDRO⁺, which is made of PE, is 100 % safe.

PRODUCT RANGE HYDRO^{CLICK}, HYDRO⁺

Material	thicknesses
HYDRO ^{CLICK} PE 80 blue	4.0 mm
HYDRO ⁺ PE 80 blue	5.0 mm



CONCRETE ANCHORS – TIGHT AND FLEXIBLE CONNECTION TO CONCRETE STRUCTURES

The AGRU concrete anchor can be welded to the lining system using extrusion welding to achieve a 100 % tight seal.

- Easy and fast installation
- Integrated circumferential chamfer reduces welding preparation time

PRODUCT RANGE Concrete Anchor

Material	Dimensions
HDPE black / PE 80 blue / PP-R grey	M16/200 mm
HDPE black / PE 80 blue	M16/150 mm
HDPE black / PE 80 blue	M12/200 mm
HDPE black / PE 80 blue / PP-R grey	M12/150 mm

*100 mm length available on request



Hydro^{click}
brochures

Induktofix System



The AGRU Induktofix system is designed for the mechanical fixing of thermoplastic lining systems onto concrete structures without penetration. The AGRU Induktofix system is compatible with the AGRU HDPE Ultra Grip concrete protective liners, the PE 80 HYDRO^{CLICK} system and the AGRU smooth liners.

SYSTEM WITH BENEFITS

The Induktofix welding discs can be mechanically fixed onto the concrete structure in variable or raster pattern. In that case it is possible to evade existing steel reinforcement. Furthermore the induction welding between the Induktofix welding discs and the lining system avoids penetrations of the lining system compared to other methods. Additional assembling of cover patches in order to seal penetrations by welding is not required when using the Induktofix system.

ADVANTAGES OF THE INDUKTOFIX SYSTEMS

- Mechanical fixing of the lining system without penetration
- Reduction of welding work compared to traditional assembling systems
- Induktofix welding discs can be placed either variably or in a defined grid pattern
- Annular space between the CPL and the existing concrete structure does not need to be filled with additional concrete (similar to the HYDRO^{CLICK} system)*
- Reduction of installation costs

APPLICATION AREAS

The main application of the Induktofix system is the renovation of existing concrete structures. This system can be used for temporary fixation of AGRU lining systems, either for tunnel constructions or for relining roof areas with concrete protective liner.

- Storage tanks
- Basins
- Tunnels
- Ceiling lining



Installation

STEP 1:

For the installation of the lining system the Induktofix welding discs have to be mechanically fixed onto the existing concrete structure. Therefore no extensive preparation of the concrete surface is required.

STEP 2:

Removal of anchor studs by stud cutter at the fixation area.

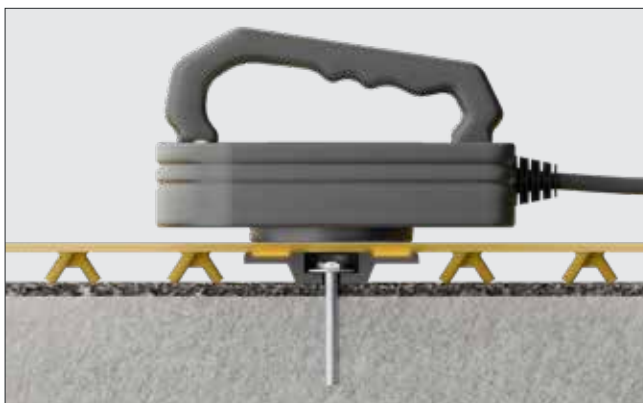
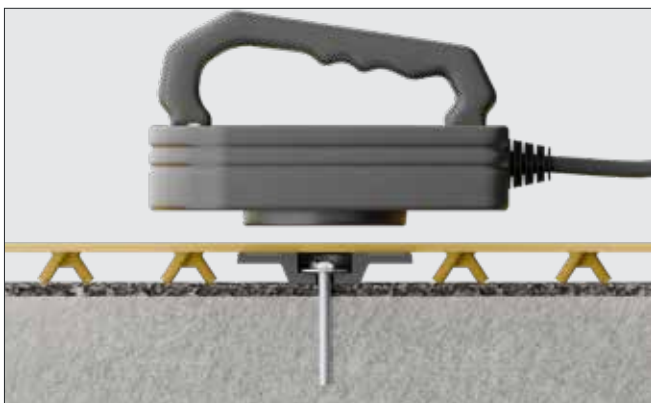


STEP 3:

Positioning of the concrete protective liner and the induction welding machine.

STEP 4:

Welding of the Induktofix welding disc.



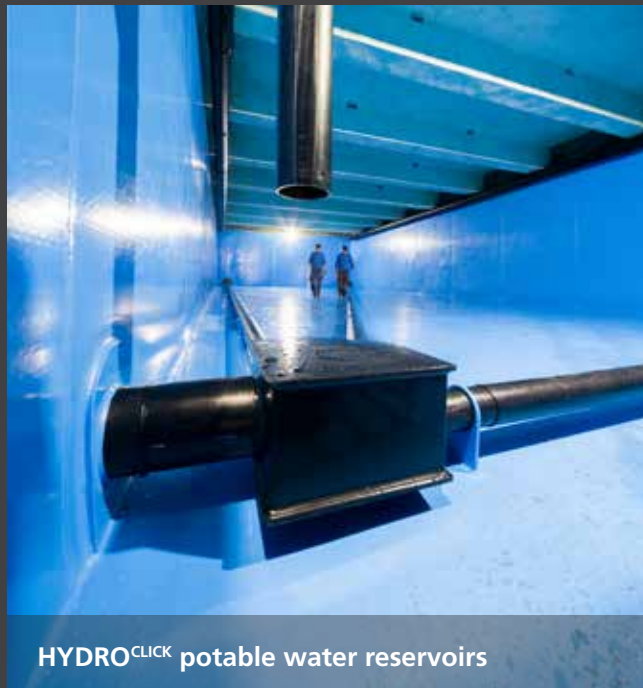
Concrete protection for infrastructure projects



AGRU Ultra Grip for wastewater collectors



AGRU-Ultra Grip for precast pipes

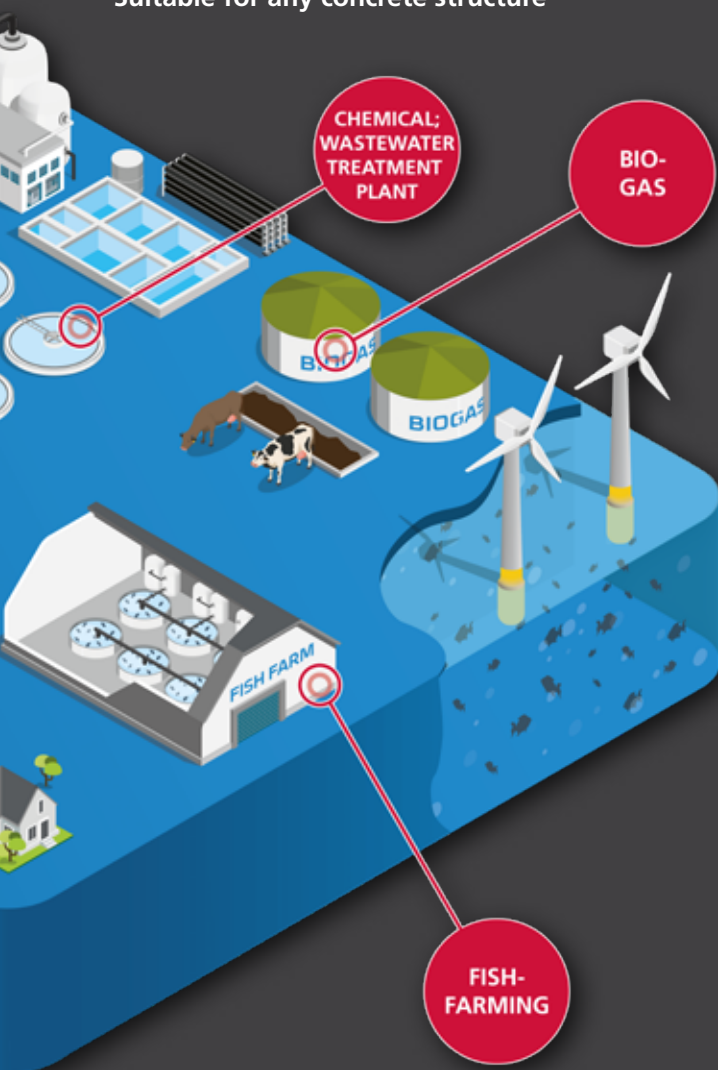


HYDRO^{CLICK} potable water reservoirs



High-performance since 1986

Solutions for every requirement
thanks to the wide range of materials
(PE, PP, PVDF, ECTFE)
Suitable for any concrete structure



AGRU-Ultra Grip for wastewater basin



AGRU-Ultra Grip for Biogas



AGRU-Ultra Grip for aquaculture tanks

Protect your Concrete with a Pioneer

The Plastics Experts

AGRUSAFE concrete protective liners will protect any building against moisture penetration and prevent fluid leakages. This considerably extends the life of the concrete structure. To give the concrete unparalleled safe mechanical anchoring, the patented AGRU-Sure Grip / AGRU-Ultra Grip stud is extruded in a single step.

At AGRU, customer satisfaction comes first. Technical consultations, training courses, welding instruction and expert supervision on-site are essential for this. AGRU maintains a quality management system according to the ISO 9001:2015 standard, as well as an environmental management system according to the ISO 14001:2015 standard and the safety and health management system according to the ISO 45001:2018 standard. Additionally the products comply with international standards and are monitored and evaluated by independent testing agencies on a regular basis.

The start-to-finish attention to quality ensures that the products meet and beat the strictest technical specifications, providing safe operation within gas, water and wastewater infrastructures.

