AGRU Kunststofftechnik GmbH is a successful, Austrian family business with worldwide activities in production and distribution of high-grade thermoplastic products.

With more than 50 years of experience, consequent pursuit of quality and a wide product range, AGRU has become a Global Player on the thermoplastic sector.

The name AGRU is inseparably tied to flexibility and customer orientation and is always exerted to provide optimal solutions for the customer.

Sure Grip® SYSTEM
The Sure Grip® concrete protective liner system, developed and patented by AGRU, offers a high-quality solution for innovative long-term protection of concrete structures and fulfills the highest requirements for acid proof construction.

AGRU Sure Grip® concrete protective liner systems made of HDPE, HDPE-el, PP, PVDF and ECTFE are produced with state of the art manufacturing facilities. The system is successfully applied worldwide for more than 20 years.
ADVANTAGES OF THERMOPLASTICS

- applicable for a wide range of structures
- absolute mechanical anchoring of the plastic liner in the concrete
- bridging of concrete cracks
- high impact resistance and excellent shear resistance
- suitable for the storage and transport of aggressive media
- chemical resistance and long life expectancy with low maintenance effort
- resistant in a wide temperature range (up to 100°C), PVDF, ECTFE (up to 120°C)
- available in UV-resistant materials
- easy and safe in installation

INNOVATIVE & UNIQUE DESIGN

Based on the unique and patented design of the V-anchor studs and their staggered order an exceptional mechanical anchoring to the concrete is reached.

This design guarantees absolute integrity of the installed system even though there are different thermal expansion appearing.

Studs with different slopes and heights offer an additional advantage for various applications.
Sure Grip® 560 concrete protective liner with a stud height of 13 mm are used for new construction as well as for rehabilitation of tanks, transloading areas, prefabricated elements and for concrete pipes and manholes. This type offers a higher pull-out resistance by the stud height of 19 mm. It is usable as concrete protection for new structures and repairs with high requirements, e.g. high groundwater pressure. The revolutionary stud geometry liner is available in 5 m width and provides superior pull-out forces at only 13 mm stud height. The Sure Grip® double sealing system consists of 2 completely separate sealing elements (Sure Grip® concrete protective liner and distance sheet) which are welded together by ultrasonic welding.

**Materials:**
PEHD, PEHD-el, PP, PP black, PVDF, ECTFE,
HDPE
HDPE
HDPE

Sure Grip® Type 560
Sure Grip® Type 571
Ultra Grip® Type 568
Sure Grip® Type 566
Double Sealing System

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The HYDRO+ systems are designated for the lining of closed potable water tanks whether new construction or retrofit. The HYDRO+ Sure Grip Concrete Protective Liners for an in situ installation within the formwork erection and pouring of concrete and the new system development HYDROCLICK for the installation after the concrete works are finished and for rehabilitation are designed and adopted for the demands in potable water applications. This concrete liner’s bionic surface (for the media contact side) provides a self-cleaning effect in channel systems, even at low flow.

**Materials:**
PE80 blue RAL 5012
HDPE

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**SPECIAL TYPES**

- **Sure Grip® with signal layer**
  - very advantageous for visual detection of damages; improved installation because of sun reflecting white layer.

- **Sure Grip® polyester fabric backed (one side)**
  - allows transitions to other products such as PVC and steel.

- **Sure Grip® with anti-skid surface**
  - anti-skid surface structure for accessible floor lining.

- **Sure Grip® with aluminium barrier layer**
  - permeation protection for groundwater dangerous media.

Installation profiles, welding rods and concrete connection sockets (CCS) at pipe penetrations/connections facilitate the installation of the Sure Grip® concrete protection liners.
AGRUSAFE Ultra Grip®
Sure Grip with improved stud geometry

The innovative stud design of the AGRUSAFE Ultra Grip® offers superior pull-out resistance from the concrete.

Especially for installations of structures in groundwater, the Ultra Grip® sealing element protects against delaminations and pull out of anchoring elements from the concrete.

The AGRU Ultra Grip® concrete protective liner is available in 5 m width. This is reducing the welding requirements in the field up to 60 % compared to other liner systems.

BIONIC-SCS-SURFACE
AGRUSAFE SCS - The self cleaning system

By latest scientific research for self cleaning surfaces with bionic behaviour, a surface pattern could be developed, which results in a decrease of sedimentation in the bottom area of sewers at discontinuous flow.

Especially at low flow-speeds a positive self cleaning effect can be reached by the turbulences created with the specially shaped ribs, resulting that solids are transferred to the center liner of the bottom section and removed.

A reduction of maintenance costs for the communes and a reduction of biogenous production of hydro-sulphurous acid, which is the main corrosion reason to the concrete for underground sewer lines, can be reached.

In addition the surface structure in the bottom section is anti-skid and increases the safety for walking during monitoring works. In dependence of the diameter, coil production lengths for no dig installation up to 200m can be manufactured.
Sure Grip®
DOUBLE SEALING

The combination of AGRUSAFE Sure Grip® concrete protective liner and distance sheet is specially suitable to fulfilling the requirements on the storage of water and environmentally hazardous media.

These two individual sealing systems are connected by an innovative technology. The space enables a permanent control of the system.

ADVANTAGES
- monitorable space between the two liners
- constant distance in the monitored space
- high mechanical resistance
- combination of two independent sealing systems
- combination of different sheet thickness is possible

APPLICATIONS
- lining of concreted storage tanks
- storage of groundwater dangerous media in collecting basins
- lining of reservoirs and drains in the chemical industry
- sewage disposal systems in the semiconductor industry
- lining of sewage water basins
HYDRO+ CONCRETE PROTECTIVE LINERS

Based on the positive experience with PE-piping systems for potable water supply and the Sure Grip® concrete protective liners for the protection of concrete structures, the AGRUSAFE Hydro+ System was developed for the lining of potable water tanks. The Hydro+ Sure Grip® concrete protective liners in new construction, where the sheets are installed on the formwork or for precast elements, creates a mechanical bond with the concrete by the anchor studs and is a perfect solution for higher temperature changes or in case of groundwater backpressure build up.

HYDROCLICK SYSTEM

The new HYDROCLICK system has been developed in cooperation with the Swiss company ETERTUB AG. The HYDROCLICK design provides a fast and safe installation for both, new construction and renovations. Especially for the rehabilitation of existing and coated tanks a removal or surface preparation of the concrete is not necessary and therefore costs and installation time can be saved.

HYDRO+ & HYDROCLICK

HYDROCLICK

• clean installation
• short installation time
• prefabrication of components is possible
• completely sealed joints
• low maintenance
• inspection is simplified due to light colour surface
• the system components can gain access through small entry openings (manholes)

ADVANTAGES

• frost resistant
• corrosion resistant
• resistant against chlorination (up to 5 mg/l)
• long life expectancy (> 50 years)
• complete leak control
• high surface quality, no deposits
• easy to maintain and suitable for high pressure cleaning
• resistant against micro-organic corrosion

CLICK!

The CLICK profile is aligned to the CLICK studs of the sheet. The profile has a co-extruded electro-conductive layer which provides the counter electrode for holyday (spark) testing. Therefore easy and fast control of the joint area after welding is granted.
APPLICATION AREAS
• Corrosion protection of concrete buildings, foundations and ceilings
• Auskleidung Lining of waste disposal sewage basins, prefabricated tanks, concrete pipes and manholes, drains and elevated tanks for potable water
• Sealing of tunnels and channels
• Collecting basis and areas for water dangerous media
• Retention ponds of oil, industrial and sludge dumps
• Sealing of handling areas for petrochemical products

LINING OF STRUCTURES BY CAST-IN-SITU
• Attachment of the Sure Grip® concrete protective liners on the formwork
• Application of reinforcement
• Erection of outside formwork
• Casting and curing of the concrete
• Removal of formwork
• Sealing of concrete protective liners by extrusion welding
• Leak test on the welds

1. Welding of concrete protective liners
2. Lining of an industrial storage tank
3. Corrosion protection of bridge pillars
4. Lining of swimming pools
5. Prefabricated tanks lined with Sure Grip® HDPE

NEW CONSTRUCTION WITH AGRUSAFe
The Sure Grip® concrete protective liner system offers a wide range of applications for the lining of prefabricated concrete structures, concrete pipes and manholes.

The system - especially developed by AGRU for concrete pipes - distinguishes itself by efficiency in production and installation.

**Advantages of the Sure Grip® Lining Systems:**

- quality and efficient installation on site
- outstanding chemical resistance
- excellent resistance against permeation and abrasion
- protection against concrete cracks
- tight joint connection by welding

**PREFABRICATED CONCRETE STRUCTURES**

The Sure Grip® concrete protective liner is applicable for covering sockets, pipes and manholes.

Different welding technologies - depending on the project requirements - are available for a safe and tight connection.
The development of different technologies enables the relining of concrete structures, independent from corrosion progress.

Application of concrete protective liners for repair:

- Direct fixation of the Sure Grip® concrete protective liners by using profiles to join different sections of the liner.
- Installation of concrete protective liners on the inside formwork with following welding.
- Curing of the gap with applicable grout.
Sure Grip® RELINING
A system for the trenchless relining of buried piping systems

AGRU offers system solutions for channel relining which enable the lining of different cross sections and dimensions.

SEGMENT RELINING
Different segment relining methods depending on channel cross sections and civil works can be applied.

Prefabricated segment inliners are fixed on wooden or monolithic formworks in the channel (complete or partial repair) and filled with grout.

The connection of the installed inliner is done by manual extrusion welding or available welding machines.

CHANNEL RELINING

TUBE RELINING-METHOD
AGRUSAFE Sure Grip® concrete protective liners in lengths up to 160 m are prefabricated as inliners on rolls and pulled into the channel (to be repaired) through the existing manholes.

Inliners are closed by a balloon and adapted with pressure to the pipe profile to be repaired.

This system has been developed in cooperation with TROLINING® and has been used for many years.