

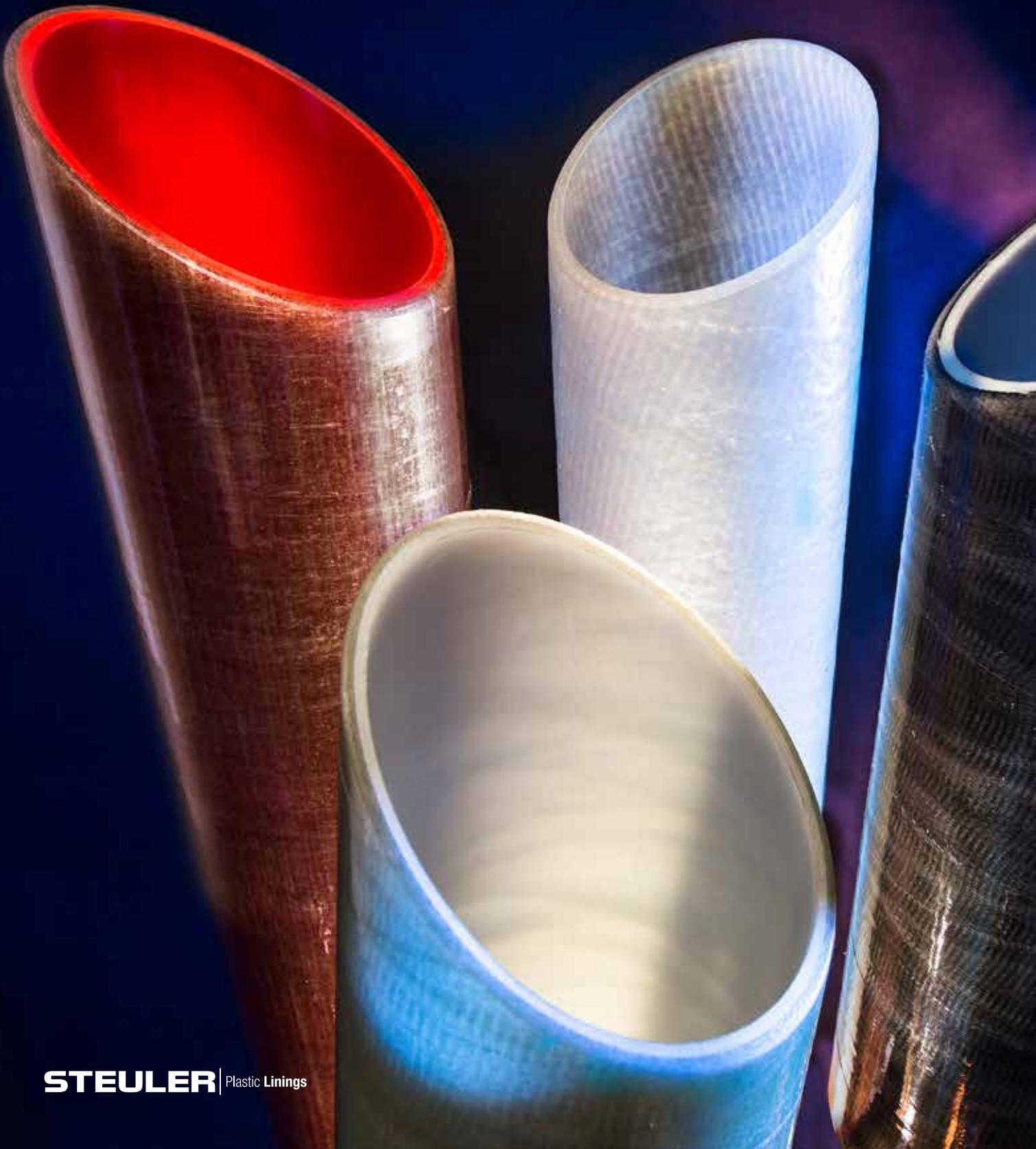
STEULER | Plastic Linings

WE UNDERSTAND
PLASTICS

FOCUS ON PROGRESS

Quality from experience

WE UNDERSTAND **PLASTICS**





Conventional (metallic) process equipment and piping systems often exhibit deficits when it comes to sustainability and safety. The flange joints of glass- or PTFE-lined steel pipes, for instance, are known weak spots that demand a high level of maintenance. It's often not possible to prevent the process media from permeating the thermoplastic liner and corroding the surrounding steel substrate. Moreover, these types of "loose linings" are only of limited suitability for use under negative pressure. The impact resistance of glass-lined steel pipes, in particular, leaves much to be desired, and piping systems made from custom alloys, such as those based on nickel and tantalum, are only used in special cases due to the cost.

So, if it is difficult to protect plants, process equipment and piping systems against aggressive media with resistant plastics or other materials, and the different properties of the materials can only be inadequately combined, why accept this compromise in the first place? Custom-made fibre-reinforced composite materials developed specifically for use in production, industry and process engineering applications offer a safe, high-quality alternative that entails fewer compromises and thus also fewer risks.





Analysis & Know-how

WE REALISE MATERIAL PERFORMANCE

Safely, efficiently and professionally – each and every day. The performance characteristics of the materials are the sum of the beneficial properties of the basic constituents, and their performance parameters can be increased near exponentially when combined in a specific way. This allows the material mix to be tailored to fit the expected application to ensure a long service life.

Our engineering and production departments have set themselves the goal of developing and supplying the most effective materials for the application in question. In doing so, their focus is on achieving safer and longer service lives, thereby maximising plant availability for our customers. The concept that provides the most efficient solution in terms of cost/benefit depends on many different factors. This is why the selection of materials and decision on the optimal design always occurs in consultation with the customer and in consideration of all parameters and plant conditions.



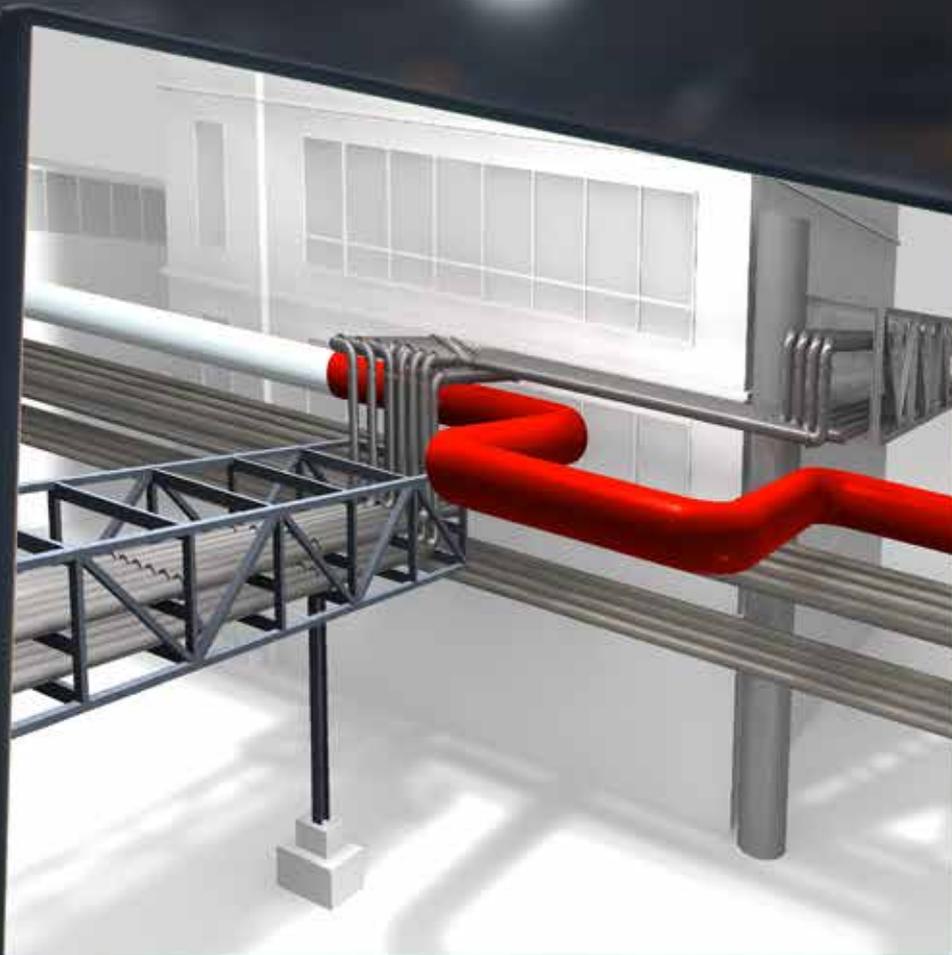
We develop detailed designs and solutions based on the respective process requirements and plant conditions – performance requirements and material selection form an optimised and consistent specification that accurately reflects and implements the customer requirement.

We also advise plant engineering firms and operators on how to increase the efficiency and safety of plants if desired, and what engineering details can be incorporated in order to minimise risk and avoid possible damage. We are a supportive partner and experienced advisor when it comes to optimising plant design and layout to increase production capacity and service life too.

We have accumulated a great deal of experience and expertise from managing all manner of projects in many different industries and manufacturing sectors – and every other project benefits from it. This experience is crucial when it comes to replacing metal processing equipment with specially matched and optimised plastic components.

Steuler also specialises in modernising and boosting the performance of existing plants. Rather than investing in the construction of completely new plants, it often makes sense to incorporate new developments into existing plants in order to keep them at the cutting edge of technology. Such investments pay for themselves quickly thanks to higher process efficiency, not to mention the immediate benefit of increased plant safety.

Steuler has been developing innovative, economic solutions for decades; always with the goal of offering the customer the best – not only in terms of choice, but when it comes to workmanship, testing and operation too.



More efficient processes

WE ENGINEER PLASTICS







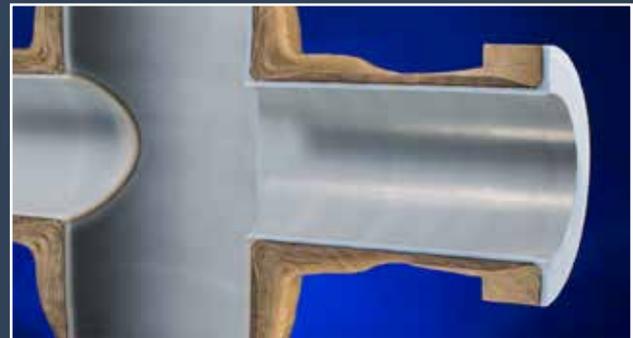
Installation

PRECISE WORKMANSHIP

You have access to all the special materials that have been developed, our pooled experience and knowledge about every design detail and aspect of production for the benefit of your plant. Designs and performance parameters, materials and formats – all aspects must harmonise perfectly in order to reliably achieve the desired performance and service life.

Steuler has the experience and expertise to manage and implement all stages of your project – including, and most importantly, installation of the entire plastic construction. Offering everything from a single experienced source is the only way to guarantee the compatibility of materials and design and ensure that all aspects of the project are managed and implemented professionally – up to our experienced installation technicians and supervisors on site. Steuler installation technicians have the skill and experience to professionally realise all of the engineering and materials specifications – and always with the overall goal in mind and a trained eye for the important details.

The services we provide at each stage of the project translate to higher plant operating times and consequently higher output. And installation time plays a key role in this too. The precise scheduling of carefully coordinated processes at the right time and at the right place – worldwide. This saves time – more specifically, your time – that you can use to your benefit.



For extreme operational demands

GLASS-FIBRE REINFORCED MATERIALS

THE ULTIMATE IN CHEMICAL RESISTANCE

KERAVERIN® is a tried-and-tested proprietary dual-laminate material made from fibre-reinforced vinyl ester resin with a thermoplastic interior liner. The key component and main advantage of the system is the interior liner, which is precisely matched to the specific chemical stresses of the environment. It is available in a wide variety of different materials. The ability to withstand aggressive and abrasive media and cope with varying pressure conditions as well as extreme fluctuations in temperature demands the best possible composite solutions with suitable property profiles in order to ensure long-term plant operation.

THE BEST OF BOTH WORLDS: CONVENTIONAL MATERIALS TAKEN TO THE NEXT LEVEL

KERAPOLIN® is our durable material that consists of a chemical-resistant barrier and a supporting laminate made from glass-fibre-reinforced unsaturated polyester or vinyl ester resins. Suitable thermosetting resins are selected according to requirements and the operating environment.

PURE GRP WITH SPECIAL PROPERTIES

ALPHACOR® is a special type of piping laminate that is manufactured with a high-resin-content interior layer and reinforced primarily with chopped strand mat in the structure. The resin used is chosen according to the demands of the operating conditions. The main field of application for the various ALPHACOR® variants is in chloralkali electrolysis processes due to the special formulation of the resin.



Wear-resistant components

HIGH PERFORMANCE THERMOSET **KERA**®



KERA® is a phenolic-resin-based thermosetting plastic that offers the possibility of custom-designing the shape of your vessels, process equipment as well as their internals and trays. The material can be reinforced with glass fibres and/or carbon fibres as well as special fillers, and offers excellent chemical resistance against non-oxidising acids and many solvents. After over 70 years of experience using the high-performance thermosetting plastic in the field, it can rightfully be called the most successful material being used in chemical plants.

Detailed designs

THERMOPLASTIC MATERIALS

The right material for every application: our service includes advising you on the right choice of material and its suitability for the applications in question. Our product portfolio includes thermoplastic polymers such as PE, PP, PVC, and PVDF to fully fluorinated thermoplastics. But not all plastics are created alike, and highly specific grades with special qualities are used in addition to the conventional materials; the range is huge. And we know how to process these materials correctly and get the most out of their properties. We make sure that the plant is designed to fulfil its function properly. We use cutting-edge CAD systems and manufacturing methods to realise our customers' requirements, from the initial idea to the finished product.

VESSELS AND PLANT EQUIPMENT FOR METAL FINISHING

Steuler specialises in the construction of vessels, tanks and complete surface treatment plants using thermoplastics. Our decades of experience, technological advancements and close cooperation with customers and plant engineering firms lay the foundation for reliable production and greater process efficiency.

WET ELECTROSTATIC PRECIPITATORS

Wet electrostatic precipitators are installed wherever aerosols and fine particulates need to be separated from exhaust gases with high degrees of efficiency. The advantages of tube bundles from Steuler are their modular construction based on a building-block design and the use of tubes with specific properties as well as a special earthing system that meets the highest of safety standards.







Steuler has been systematically exploiting the outstanding properties of thermoplastic and thermosetting materials in the chemical plant engineering sector for more than 60 years. Tube bundles made from flame-retardant PP or PVC and PVC-C as well as from PVDF have been operating successfully in wet electrostatic precipitators around the world for over 40 years.

Steuler has continued to develop this technology further, allowing for a high degree of automation in the manufacturing process. The reason Steuler uses thermoplastics for its tube bundles is the weight advantage and outstanding chemical resistance they offer. The integrated earthing system ensures the electric current is safely dissipated. The electrically conductive inner surfaces of the tubes ensure that the plant enjoys the highest possible operational safety.

GAS DISTRIBUTION PLATES MADE OF THERMOPLASTIC MATERIALS (PP, PVC, PVDF)

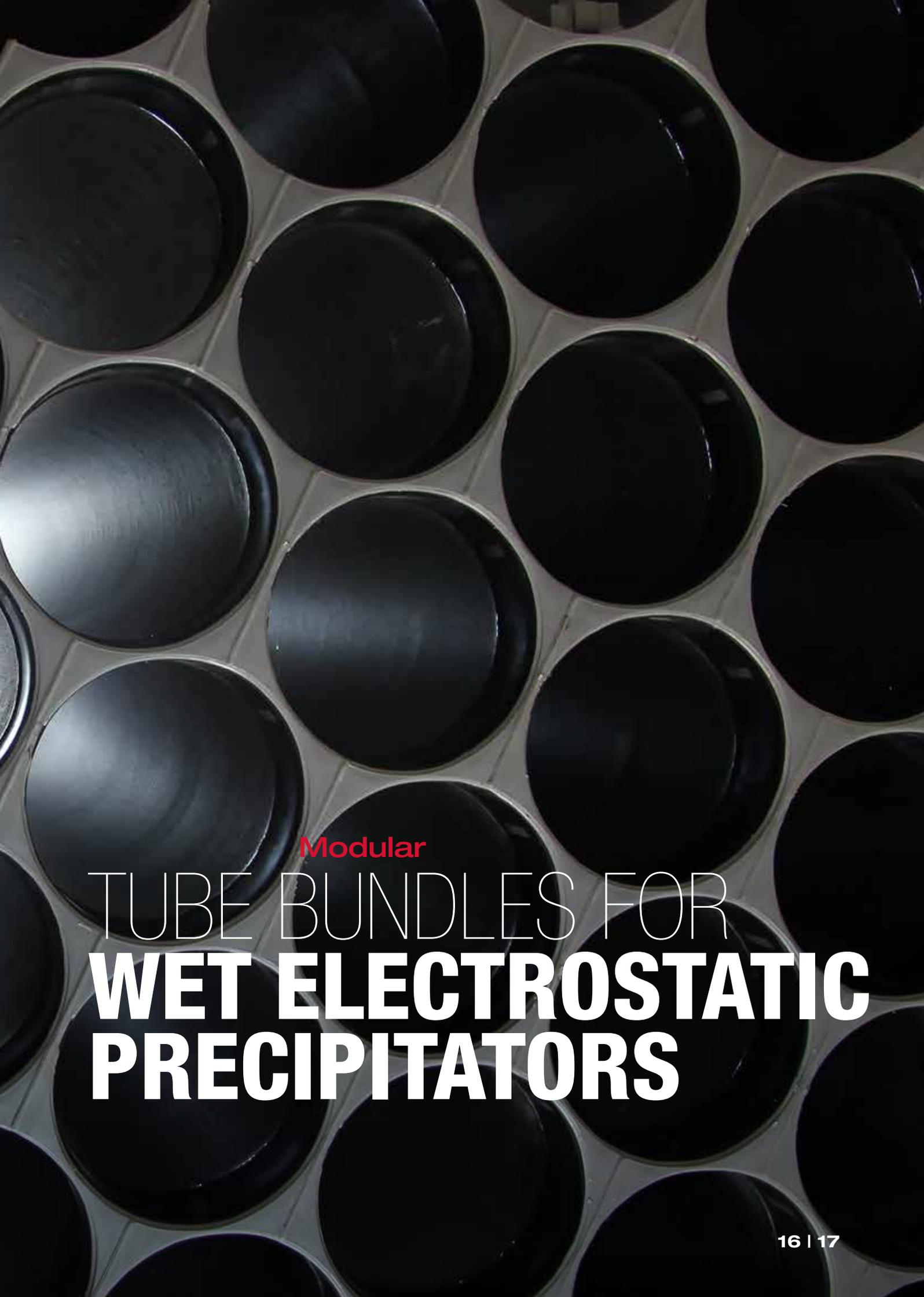
Our gas distribution plates are characterised by their low weight, high stability and outstanding chemical resistance. We use our expertise and practical experience to supply appropriate designs for all cross sections.

ELECTRODE TENSIONING WEIGHTS MADE OF PLASTIC MATERIALS

The tensioning weights are highly chemically resistant and offer a cost-optimised solution.

PVC/GRP, PP/GRP, PURE GRP ELECTROSTATIC PRECIPITATOR HOUSINGS

Electrostatic precipitator housings made from PVC/GRP, PP/GRP and PURE GRP are based on special polyester and vinyl ester resin grades that are flame retardant and self-extinguishing. The exterior surfaces are electrically conductive. Fully prefabricated precipitator housings allow quick and easy installation. The fact that they are low weight and maintenance free provide additional cost-benefits.

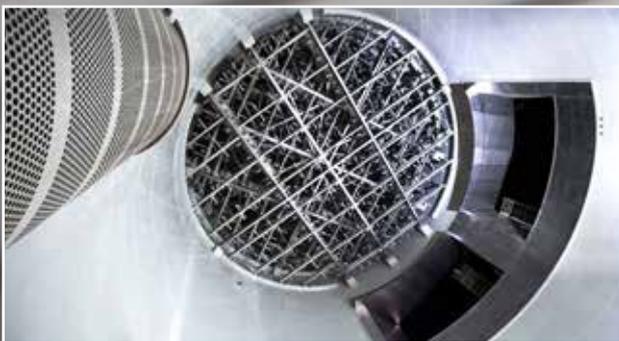
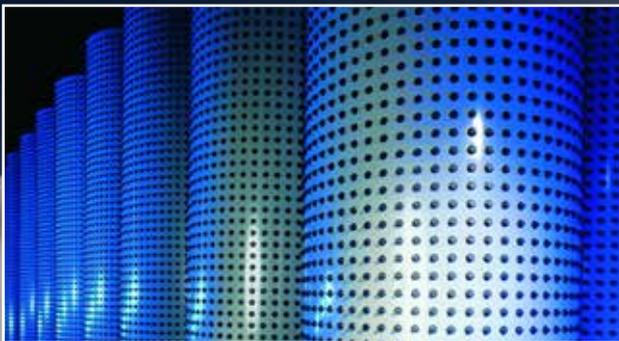


Modular

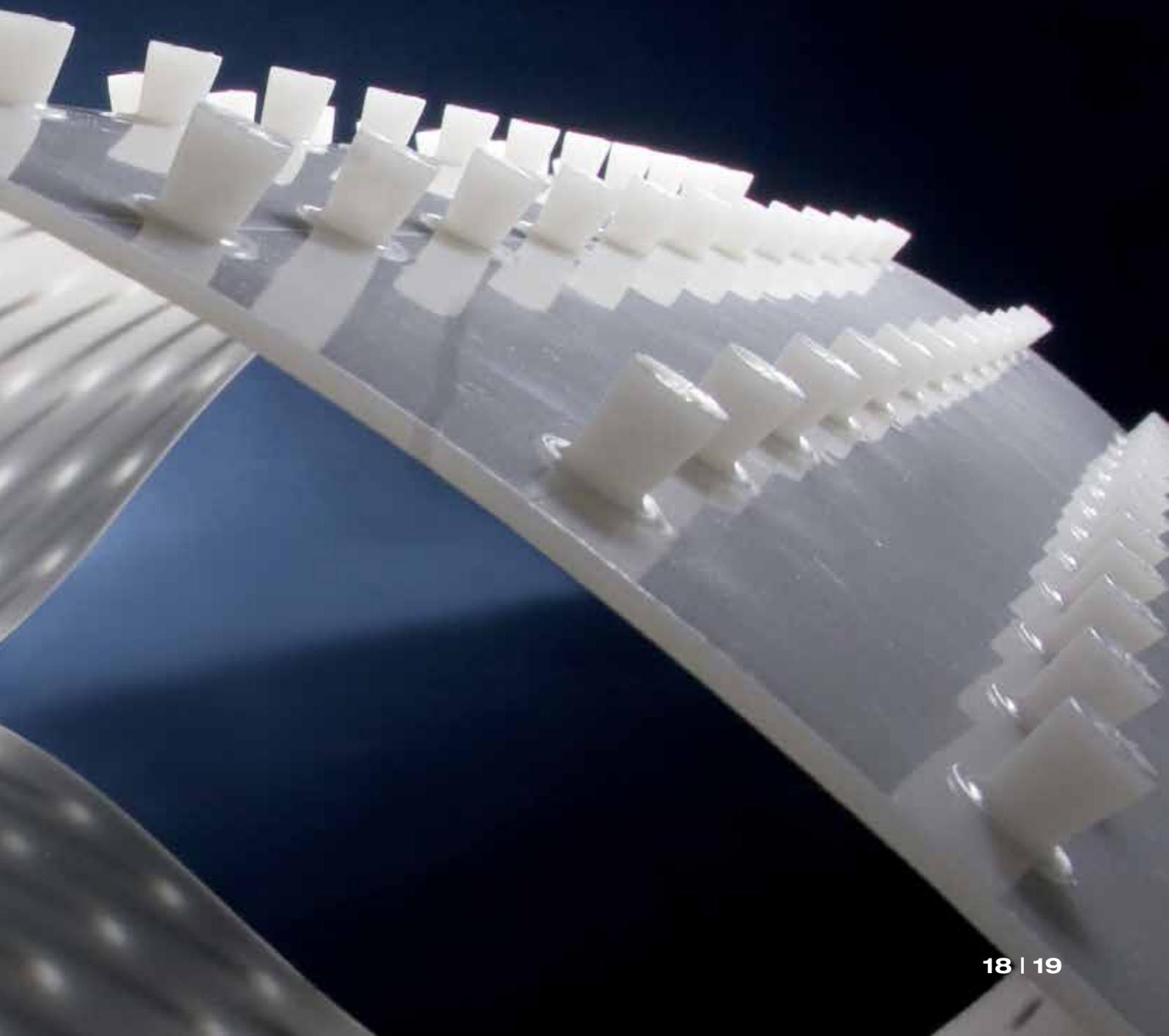
TUBE BUNDLES FOR
**WET ELECTROSTATIC
PRECIPITATORS**

The special feature of the BEKAPLAST system is the large tapered anchoring studs on the back of the plates. They form a secure mechanical connection between the plastic lining and the concrete substrate. BEKAPLAST can be repeatedly repaired, is highly impact resistant and resistant to biogenic corrosion, can withstand high and low temperatures and even abrupt temperature fluctuations.

BEKAPLAST has proven its worth in the field for over 60 years. From solving problems in the chemical industry and communal drainage systems, the installation and renovation of pool and channel linings to vessel construction – the fields of application for BEKAPLAST are as varied as the demands that are currently placed on modern, future-proof lining technology.



Mechanically anchored
SYSTEM
BEKAPLAST



STEULER

Plastic Linings

Together with our subsidiaries and representatives, Steuler offers a worldwide network to our clients that develops and implements comprehensive system solutions.

Alphaplast, S.L.U.
Spain

CIMA S.r.l.
Italy

Ditescor S.A. de C.V.
Mexico

STEULER-KCH Polska Sp.z o.o.
Poland

**Shanghai STEULER-KCH
Anticorrosion Engineering
Co., Ltd.**
China

STEULER Chile SpA
Chile

STEULER-CTI N.V.
Belgium

STEULER-KCH Austria GmbH
Austria

STEULER-KCH France SARL
France

STEULER-KCH AUSTRALIA Pty. Ltd.
Australia

STEULER-KCH MAROC SARL
Morocco

Steuler-KCH Nordic AB
Sweden

STEULER-KCH SAUDI Co. Ltd.
Kingdom of Saudi Arabia

Steuler Técnica, S.L.
Spain

**TECNICAS DE REFRACTARIOS, S.A.U.
(TECRESA)**
Spain

STEULER-KCH GmbH

Berggarten 1
56427 Siershahn | GERMANY
Phone: +49 2623 600-0
E-Mail: info@steuler-kch.de

www.steuler-kch.de