

**PLANTS FOR
PLASTICS PROCESSING**



Plastics Processing

ENGINEERING YOUR SUCCESS



Zeppelin Systems, the world leading plant manufacturer for high quality bulk material handling, has remarkably grown over the past 60 years. We cover the demands of a wide range of industries and supply all plant manufacturing services from one single source, whether basic engineering, in-house production of components, final assembly or comprehensive customer service. Thanks to our financial strength and our global network we have long been a reliable partner for our customers.

Every Zeppelin plant is developed according to the clients' specific requirements and realized thanks to our customized innovative processes and technologies.

The knowledge we have acquired over more than 60 years of plant manufacturing and the world's largest network for bulk material handling are the key to providing ideal solutions whatever the challenge. After all, your success is our goal.

Zeppelin plant engineering – business fields

Polyolefin Plants

Plants for plastics producers and forwarders

Plastics & Rubber Plants

Plants for the plastics processors and rubber industry

Food Plants

Plants for the food, confectionery and bakery industry

Mixing Technologies

Mixers, mixing systems

Silos & Filters

Silo technology and filters

Components

Diverter valves, rotary feeders, separators, sifters ...

Customer Service

Assembly, maintenance, spare parts

INTEGRATION AT THE HIGHEST LEVEL

Plastics Processing

Zeppelin is at the cutting edge of plastics processing, specializing in PVC processing plants, compounding plants and the manufacturing of cross linkable polyethylene cables for the cable industry.

We are particularly valued for the perfect integration of our systems and components in the overall process. We provide our customers with customized solutions for their individual requirements for flexible and reliable raw material management. Turn-key silo solutions are seamlessly integrated into the overall logistical concept.

Innovative conveying processes, dosing systems, mixers etc. – Zeppelin always has the right solution for all your plastic processing requirements.

This is where our global network, with project management capacities on six continents and production plants in the most important economic regions, comes into play, always guaranteeing our customers personal advice and on-site support.



YOUR MARKETS ARE OUR MARKETS



Whatever market you are targeting when constructing or expanding a production facility, we will be there with you. In fact, we are often already there. With over 20 subsidiaries, we can serve the most important markets locally. We know the local conditions, the national regulations, norms and legal requirements and adapt these to our engineering concept. We're not just a supplier, we

supply turn-key solutions. You can communicate with us in the local language and always meet us in the right time zone. Invoicing in the local currency is another of the advantages of working with us. In comparison to small, local suppliers, with Zeppelin you can benefit from our global expertise and the experience of more than 500 engineers who understand your business.





YOU DON'T HAVE TO TAKE MAJOR DECISIONS ALONE

Building a new plant or expanding an existing one is an extremely complex project. Even prior to the decision to invest, all eventualities must be considered. Planning processes should be designed in such a way that time and costs are used as efficiently as possible.

We can support you in this and provide optimal project management with Zeppelin Value Engineering. Right from the initiation phase, we will be by your side with our Front-End-Engineering & Design (FEED), providing you with all the relevant data you need to make the best decisions.

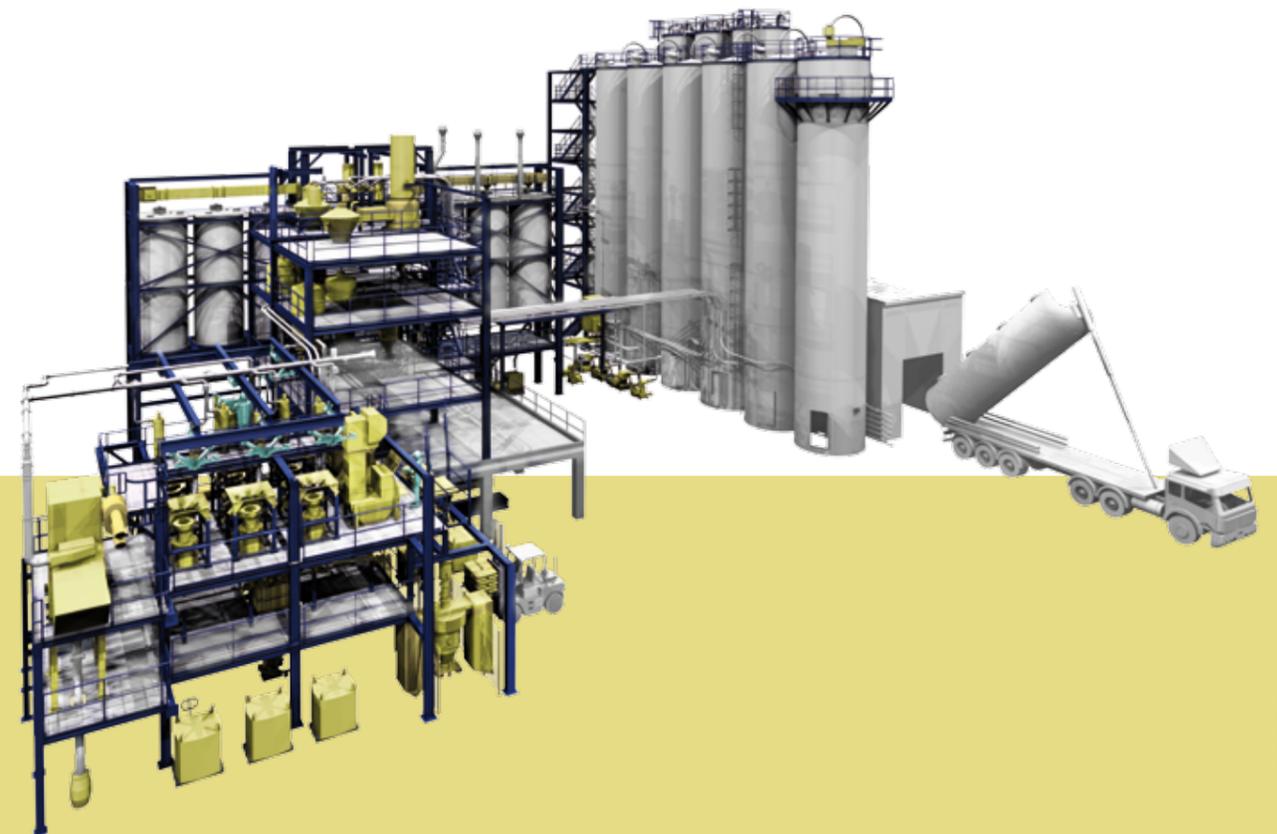
Our feasibility study will help you to optimise the scope of the project right from the start, with the aim of shortening the implementation phase and significantly reducing the number of

modifications required. A quicker time to market is just one of the benefits of this process.

For all project phases, we provide simulations and calculations for better assessment of the costs to be incurred and reviewing the performance of the system ...

We create PFDs or a 3D layout plan of the entire plant, determine the energy requirements and assist you in the dimensioning and specification of the main components.

The more accurately costs, volumes, deadlines, effort etc. can be determined, the more efficiently a project can be driven forward to ensure that your investment pays off, right from the start.



PROCESS COMPETENCE IS AT THE HEART OF THE PLANT CONSTRUCTION

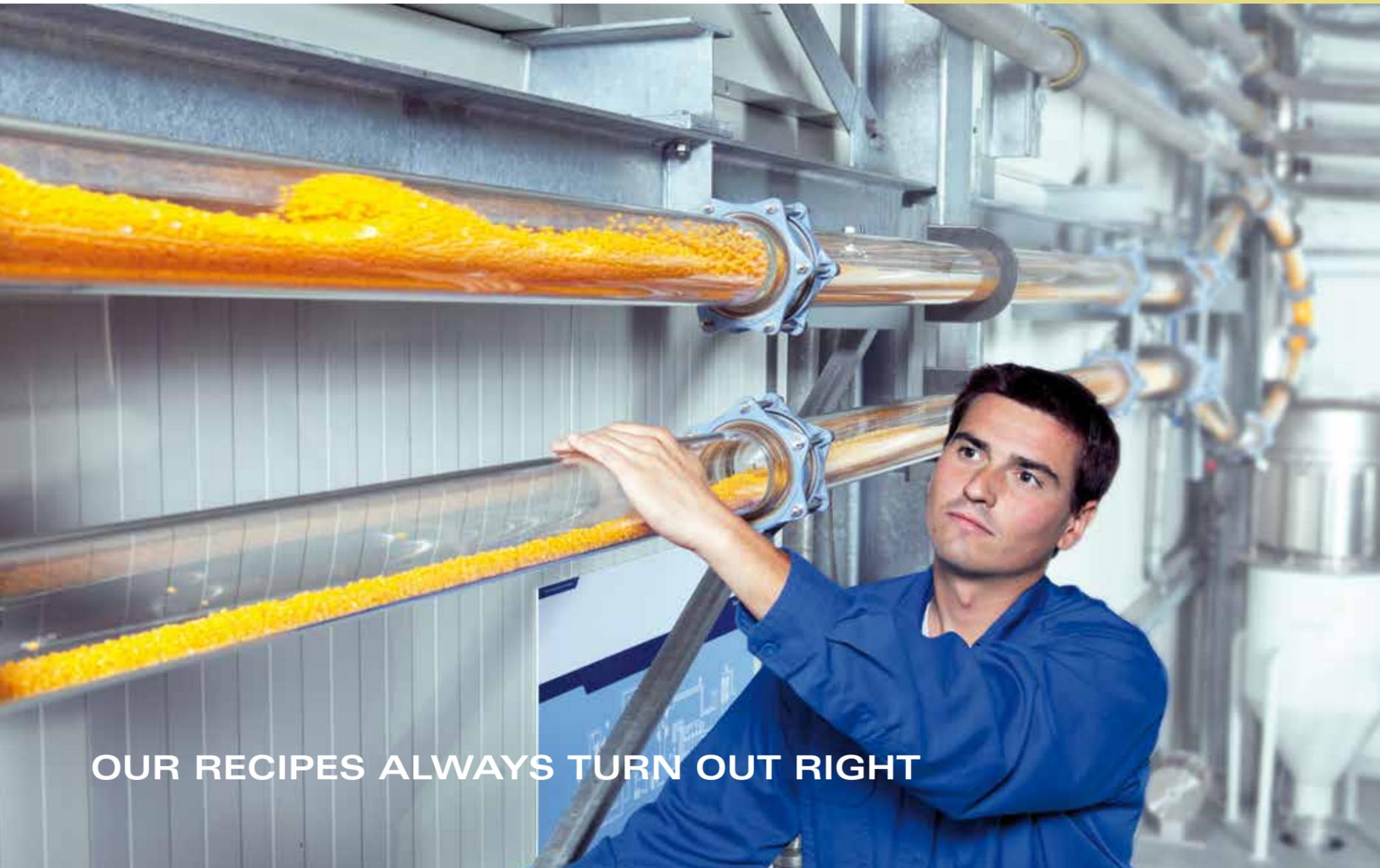


A chef who only uses three seasonings will find it difficult to produce lots of different top quality dishes. A plant builder who can only fall back on standard process technology will find it difficult to respond well to individual customer requirements. We have a wide range of innovative process and process technologies at our disposal, which we adapt and apply to our customers' needs.

Our activity in different sectors is an advantage here. We have in-depth knowledge of the chemical industry, the food sectors, we supply systems for the rubber and tire industry, we are experts in mixing and compounding and so on. This enables us to transfer technologies, which have long been used in one sector, to other sectors in which they are considered innovations.

Thanks to the experience we've gained over the years, we are also familiar with all the process steps used in our customers' raw materials and products processes and are optimally positioned as "chefs" to handle their "recipes". We also develop completely new procedures for processing and manufacturing sensitive raw materials, both for and with our customers. To help us to do this, we have the world's largest technology center for bulk material at our disposal.





OUR RECIPES ALWAYS TURN OUT RIGHT



Moving various substances and raw materials as gently as possible in a predetermined, exactly timed and dosed sequence through the manufacturing process is, broadly speaking, our main task when designing our engineering solutions. To do so, we are guided by your "recipes" and requirements, right from the start.

We respond to different types of containers and materials in the delivery of raw materials with flexible and reliable raw material management.

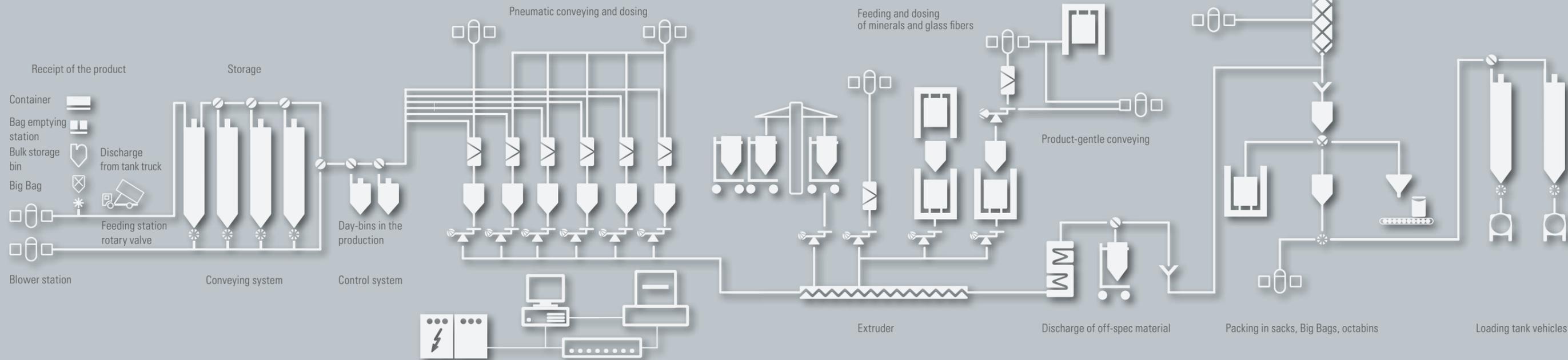
All kinds of high quality bulk material are always transported smoothly and seamlessly using innovative conveying methods. At Zeppelin, this also includes the handling of liquids.

Dosing and weighing are carried out accurately and without contamination. The materials are fed into each process without any material loss. We have also developed innovative manual and automatic solutions for weighing small components.

Our modern control systems are able to meet the highest requirements, while open architecture ensures that the plant can be easily adapted to future challenges.



COMPLEX CHALLENGES ARE OUR SPECIALITY



Complex jobs require extensive know-how to develop optimal solutions – we're in our element here, in compounding plastics for example. Many different, difficult to process raw materials place high demands on extruders and especially on the dosing system. Absolute accuracy, high reliability and 24/7 reliability are the prerequisites for the successful operation of the entire plant.

We integrate the right dosing system into your plant, along with all the accompanying conveying procedures for different raw materials and additives like stabilizers, lubricants, softeners, dyes,

fillers, flame retardants, cross-linking agents and propellants, glass or carbon fiber to improve stiffness, or mica to improve appearance for example.

We also offer innovative solutions and components for the smooth conveying of the materials after compounding as well as for the obligatory cleaning and inspection of the finished products.

And that's not all: from semi or fully automatic packaging systems to the logistics for finished products to silo loading plants, Zeppelin delivers turn-key plants from one single source.

STABILITY ON EVERY SITE



The stability of the complete plant plays a crucial role in the treatment of PVC powder. When batch quantities are processed, the dosing systems must meet the highest requirements as to precision and reliability in order to guarantee consistently long-term high product quality.

The supply of a large variety of raw material requires the first-rate administration of recipes, using a modern programmable controlling system. For frequent changes of recipes, rapid cleaning must also be ensured. Because raw materials and additives' properties complicate the handling of bulk material, they will be automatically dosed to heating/cooling mixer combinations according to their recipe. After mixing the finished dryblend, it is conveyed to the extruder using buffer silos.

Inflatable conveying pipes, vibrated rubber or PE pipes and the Overflow system for bypass conveying ensure safe material handling even under the most difficult conditions. In addition, blending silos which have been specially designed to overcome segregation problems can be connected to the extruder, if required.

Softeners and other liquids, heated, cooled or melted using flexible liquid dosing plants, are provided as necessary. Similarly, oil scales or volumetric multi-dosing systems for closed systems are used.

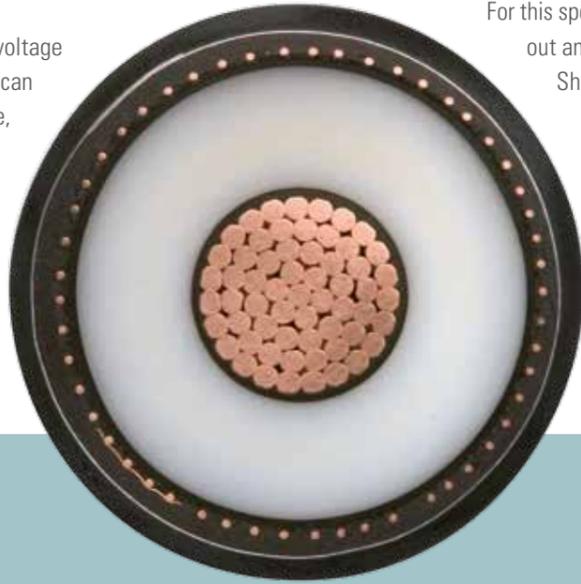
CREATE TENSION CALMLY

Handling materials for the production of cable sheathings using VPE pellets is one of the most demanding tasks in bulk material technology. The requirements for product purity are particularly high. Experience, know-how and perfectly adjusted complete systems determine the quality of the final product.

When insulating medium and high voltage cables, even the smallest impurities can cause significant damage. Therefore, handling raw materials in clean room conditions is the precondition

for a reliable process. Peroxide clusters and impurities cannot be tolerated. Therefore, we rely solely on our own knowledge for this task – all components have been exclusively designed by Zeppelin.

For this special application constructions without any dead zones have been developed. Shock-free pipe connections, special fittings, and gentle low-velocity conveying – here every detail is decisive.





SETTING STANDARDS IN MIXING AND COMPOUNDING



For over 50 years, Mixing Technologies has been setting standards on the market with its mixing and compounding systems. When it comes to PVC, plastic compounds or mineral processing, paints and pigments, toners or chemistry, our competences are second to none. We know what it takes to master the processes and the handling of sensitive products, which is why our solutions are so popular.

In order to achieve considerable improvements to our customers' products, it is not enough to only adjust technical details to the

production parameters. Together with our customers, we develop completely new methods of processing and manufacturing of sensitive raw materials.

To achieve efficient production lines with high availability and consistent product quality one should apply an appropriate system technology and a process tailored to the specific needs of the particular product. Our plants and mixers meet these requirements in system solutions for continuous and batchwise processing.



EVERYTHING FOR OUR CLIENTS

You can rely on Zeppelin Systems' first class service. Our job doesn't end with the design of your plant; we also carry out the assembly and commissioning – all over the world. We offer training for your personnel as well. This includes qualified instructions in process technology, proper maintenance and reliable and safe operation of the control system. You can also rely on us for the development of safety standards. Maintenance work, inspections and repair as well as spare parts delivery are naturally part of our scope of services.

EXCEEDING TECHNOLOGY: the people at Zeppelin

Whether partner, supplier or entrepreneur – it's the people that make a difference. Zeppelin values teamwork within the global network, in collaboration with our customers or in one of many project groups that actively contribute to our common success.

We know that outstanding technology alone does not make you successful internationally. For that, you also need employees that are able to meet the local requirements and make use of our worldwide expertise.

That's why you will find Zeppelin in every corner of the world where functionality and reliable operation are highly valued.



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www.zeppelin-systems.com

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