

INNOVATIVE PLANTS FOR THE POLYOLEFIN INDUSTRY

# EXPERIENCE CREATES PROCESS COMPETENCE

POLYOLEFIN INDUSTRY



[zeppelin-systems.com](http://zeppelin-systems.com)

 **ZEPPELIN**<sup>®</sup>  
WE CREATE SOLUTIONS

# ENGINEERING YOUR SUCCESS

A photograph of an industrial facility at night, featuring large storage tanks and complex piping structures illuminated by bright lights. The facility is situated near a body of water, with a dark, starry sky in the background.

## ABOUT ZEPPELIN SYSTEMS

Zeppelin Systems specializes in the design, construction and technological upgrading of industrial plants for storing, conveying, mixing, dosing, and weighing high-quality bulk materials and raw materials. From plant planning and project implementation to aftersales service including process optimization. As an integrated solution provider, Zeppelin Systems delivers complete solutions from a single source.



# WE ARE EXPERTS IN PLANT ENGINEERING

Our experience guarantees your success!

Zeppelin Systems individually develops and manufactures every plant. It goes without saying that, in doing so, we address the needs and challenges of our customers. We develop tailored solutions using innovative processes, smart technologies, high-performance components and efficient services, depending on the industry and sector.

Zeppelin Systems draws on many years of cross-industry experience and is a professional in the handling of high-quality bulk materials. The wide-ranging portfolio is rounded off by the unique worldwide network of technology centers, which performs trials and tests on an industrial scale. This ensures one thing: Your success! **We Create Solutions!**

## Zeppelin Systems' business segments

PLASTICS INDUSTRY

FOOD INDUSTRY

RUBBER AND TIRE INDUSTRY

BATTERY INDUSTRY

CHEMICAL INDUSTRY

HIGH-INTENSITY MIXERS AND MIXING SYSTEMS

SILOS

COMPONENTS

SERVICE

PLANT MODERNIZATION

# PERFECT SOLUTIONS FOR A VERSATILE MATERIAL

Zeppelin Systems is an important partner for the polymer industry.

Thanks to their wide range of possible uses and applications, plastics are an integral part of our everyday lives. Zeppelin Systems plays a large role in the production of these plastics. This is because our plants are at the forefront of technology and deliver perfect solutions for any type of plastic material. We develop large-scale plants for the world's leading plastics producers, logistics companies and freight forwarders. In addition, we build compounding and plastic recycling plants, as well as special plants, such as those used to manufacture highly cross-linked plastics (VPE) for the cable industry. Plant modernization is also part of our portfolio. Benefit from the know-how of our experts to increase the efficiency of your plant.

## **SOLUTION PROVIDER FROM A TO Z**

We are particularly valued as a solution provider because we offer customized material handling solutions that are tailored to our customers' needs. Turnkey subsystems are seamlessly integrated into the overall logistics concept.

Speaking of logistics: We offer much more than that. In the "Polymer Alliance", we have partners for extrusion as well as packaging and bagging machines. In this way, we cover the entire bulk material chain, from production to loading the final product.

## **We Create Solutions!**





**Zeppelin Systems has decades of experience in building plants for plastics production**





# YOU DON'T MAKE FAR-REACHING DECISIONS ON YOUR OWN

Project management: Optimized results with Zeppelin Systems Value Engineering.

Building or expanding a plant is a highly complex matter. All contingencies must be taken into account in advance and planning processes must be designed efficiently.

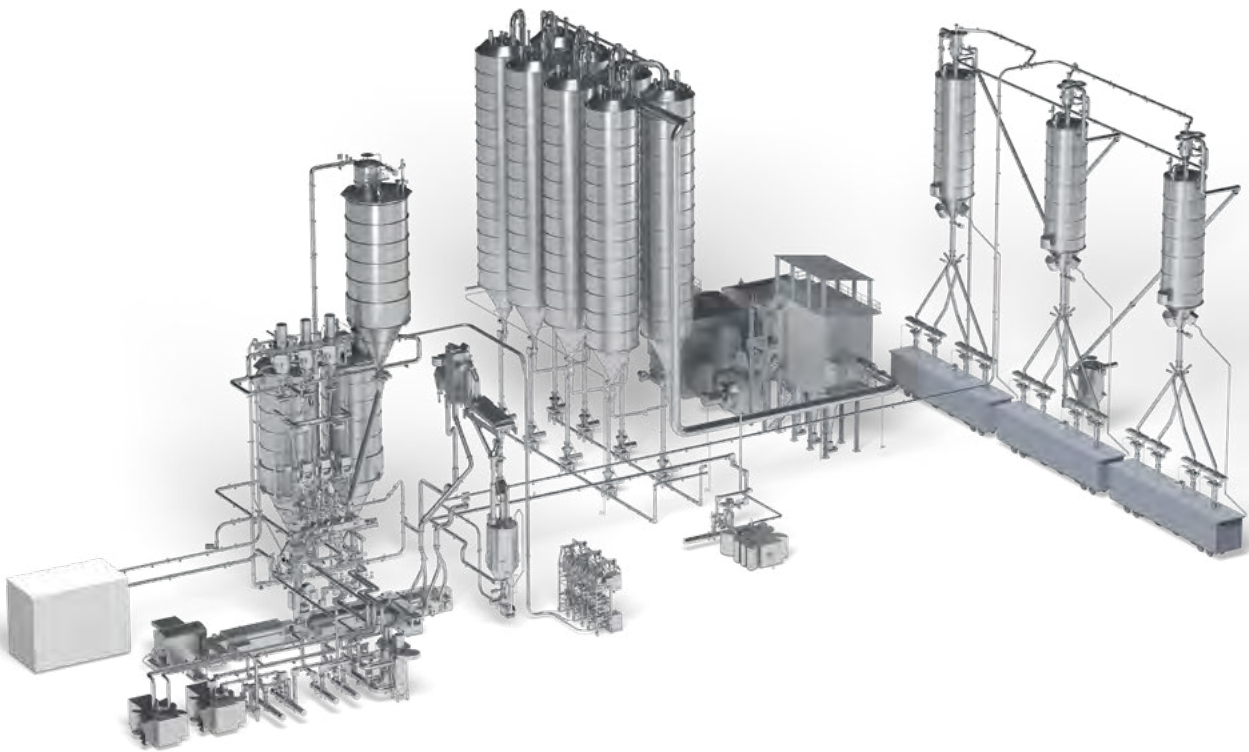
## GET TO MARKET FASTER WITH US

We won't leave you on your own. With our Zeppelin Systems Value Engineering, we ensure optimal project engineering and management. We are your expert partner right from the initiation phase, providing you with all the relevant data you need for optimal decision-making through front-end engineering and design (FEED). By conducting a feasibility study, we increase the depth of detailing for you at the start of the project. The

aim is to shorten the implementation phase and significantly reduce correction efforts – to achieve a faster time to market, for example.

## THE EFFICIENCY TURBO FOR YOUR INVESTMENT

Simulations and calculations for all phases of the project, a complete installation plan in 3D or as PDFs, determining energy requirements, support in choosing the main components – we support you wherever it is possible. After all, the more accurately costs, volumes, deadlines, expenses, etc. can be determined, the more efficiently you can advance your project. Plus, this ensures your investment pays off right from the start.



# COMPLEX TASKS ARE SOLVED WITH KNOW-HOW

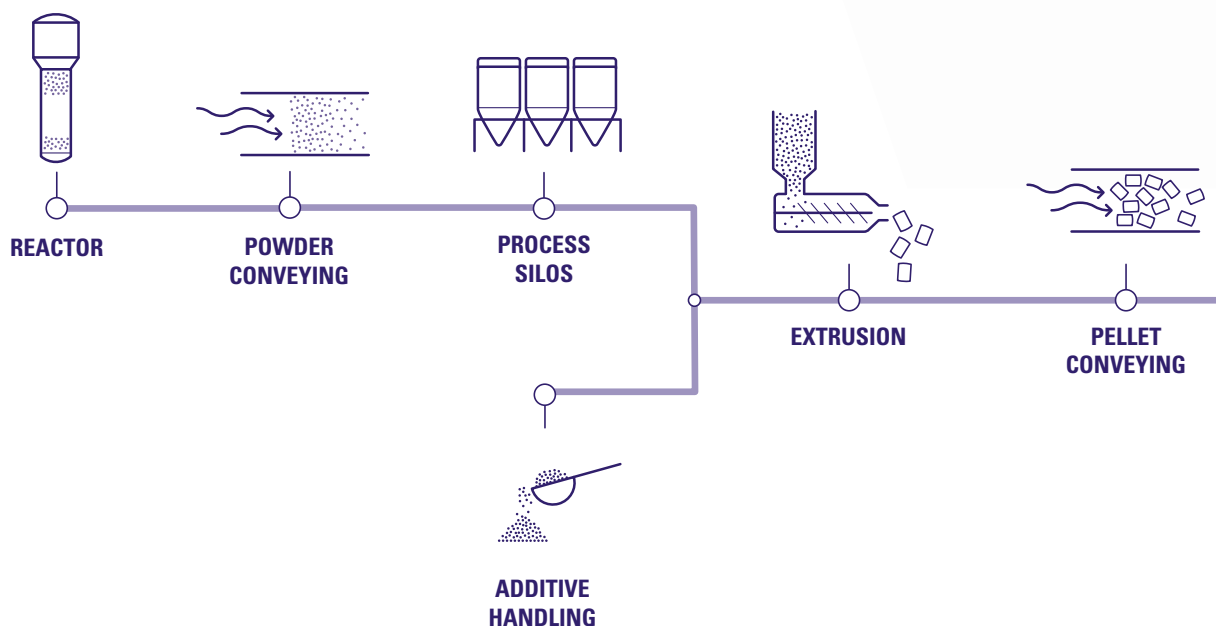
Bulk materials handling: We know what matters.

Zeppelin Systems is your solution provider: We ensure a coherent concept and plant design for bulk materials handling, tailored to your needs, market requirements and local conditions. In addition, we advise on the topic of system availability and the economic profitability of your system – keyword CAPEX – OPEX.

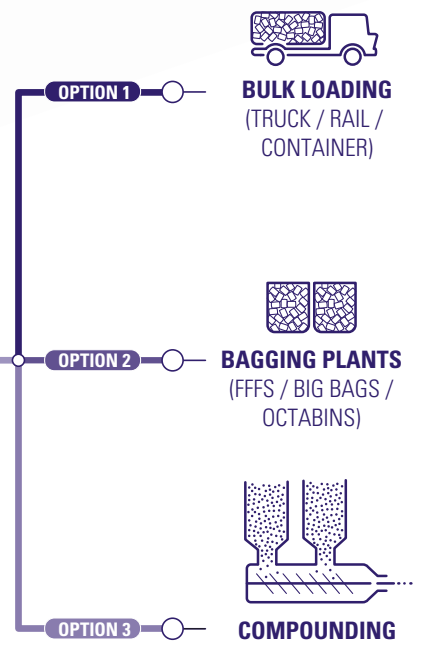
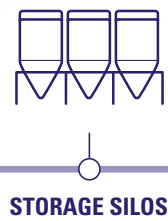
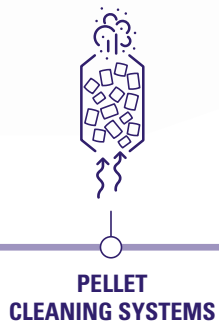
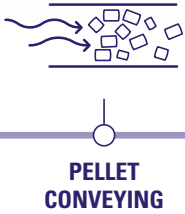
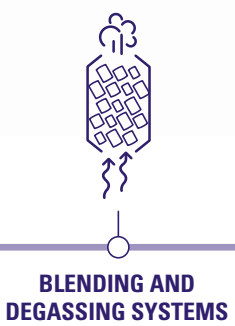
## THE BEST TECHNOLOGY FOR DIFFICULT BULK MATERIALS

As a plant engineering expert with decades of experience, we have the know-how and key components along the entire material handling process chain: We know the degassing process and build the process silos. We design the process-oriented conveying systems for powders and pellets as well as blending silos according to your raw materials. And we ensure product quality through our separation and collecting systems.

We handle all this in-house, from engineering to production and commissioning.







# TESTING FOR OPTIMAL RESULTS

Zeppelin Systems Technology Center: Reliable decision-making support.

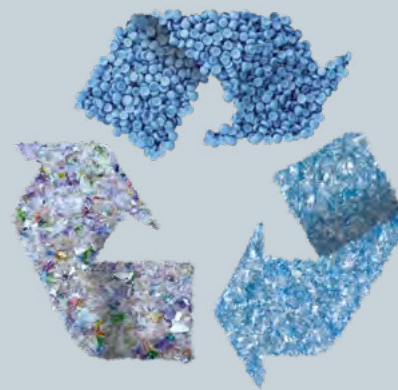




The Zeppelin Systems Bulk Materials Technology Center in Friedrichshafen is equipped with all components and systems that are relevant to the process. Our customers expect us to engage closely with their products – after all, only by having outstanding product knowledge reliable, process-optimized, energy efficient, cost-optimized systems can be produced.

### PRACTICAL TESTS

We carry out tests directly on an industrial scale, thus avoiding any unpleasant surprises during scale up. Typical product tests include shear or abrasion tests, determination of general bulk material data, particle size distribution and wall friction values, dust measurements and many more. Special equipment configurations are also not a problem for us. Our experts perform a precise analysis of the results so that you have a solid basis for your investment decision.



### NEW IDEAS FOR PLASTIC RECYCLING

With our many years of experience in plastics and recycling processes, we serve the recycling markets of the plastics and recycling industry and offer solutions in petrochemicals, plastics and tires.

Our innovative FLUFF-TEC concept also makes it possible to recycle fluffy materials cost-effectively. Together with the customer, we work on a solution that takes into account their customized requirements and, if necessary, also includes tests in the Zeppelin Systems Technical Center.

Detailed information on FLUFF-TEC can be found in our brochure "Optimal handling of fluffy materials", which you can request from us.



# PLANT ENGINEERING NEEDS PROCESS EXPERTISE

Attempts: Our basis for perfect processes.

The numerous test facilities in our technical center are state-of-the-art and thus guarantee optimal results. State-of-the-art measurement technology is used to record the complete test data. We determine the relevant design parameters and create detailed analyses and reports that serve as the basis for your plant design. We always rigorously test and check new and further developments of components.

## CONVEYING TECHNOLOGY TESTS

We test the dense phase and dilute phase conveying of pellets and powders with a wide range of pipe diameter, throughputs and conveying lengths. Depending on the product type, we also test suction and pressure conveying. We also carry out tests for the hydraulic conveying of pellets and the dense phase conveying of sensitive bulk materials using a bypass system. We test rotary valves and pressure vessels in various sizes and designs.

## TESTS IN STORAGE, DISCHARGE, BLENDING AND DOSING TECHNOLOGY:

Storage and blending silos as well as bins with a wide range of discharge systems for the various plastic powders and pellets are available at the Zeppelin Systems Technical Center. In addition, we test how bulk materials behave during heating, cooling and degassing and pellet cleaning with different separator systems. We furthermore test components such as drum screen as well as various filter systems and cyclones in order to separate angel hairs, streamers, bird nests or dust.

### CONVEYING SYSTEMS: DENSE PHASE AND DILUTE PHASE CONVEYING OF PELLETS AND POWDERS

- Dimensions: DN 65 – 225\*
- Conveying: 10 – 460 m\*
- Throughputs: up to 200 t/h use in combination with degassing possible
- Conveying of heated products

\* Customized extensions possible





**Zeppelin Systems  
Polyolefin Technology  
Center**

**Process  
feeders**



**CFH  
rotary  
feeders**



**TST  
diverter  
valve**





# CONSISTENT PRODUCT QUALITY

Blenders and silos: Customized to  
your production requirements.

**Multi-channel silo**

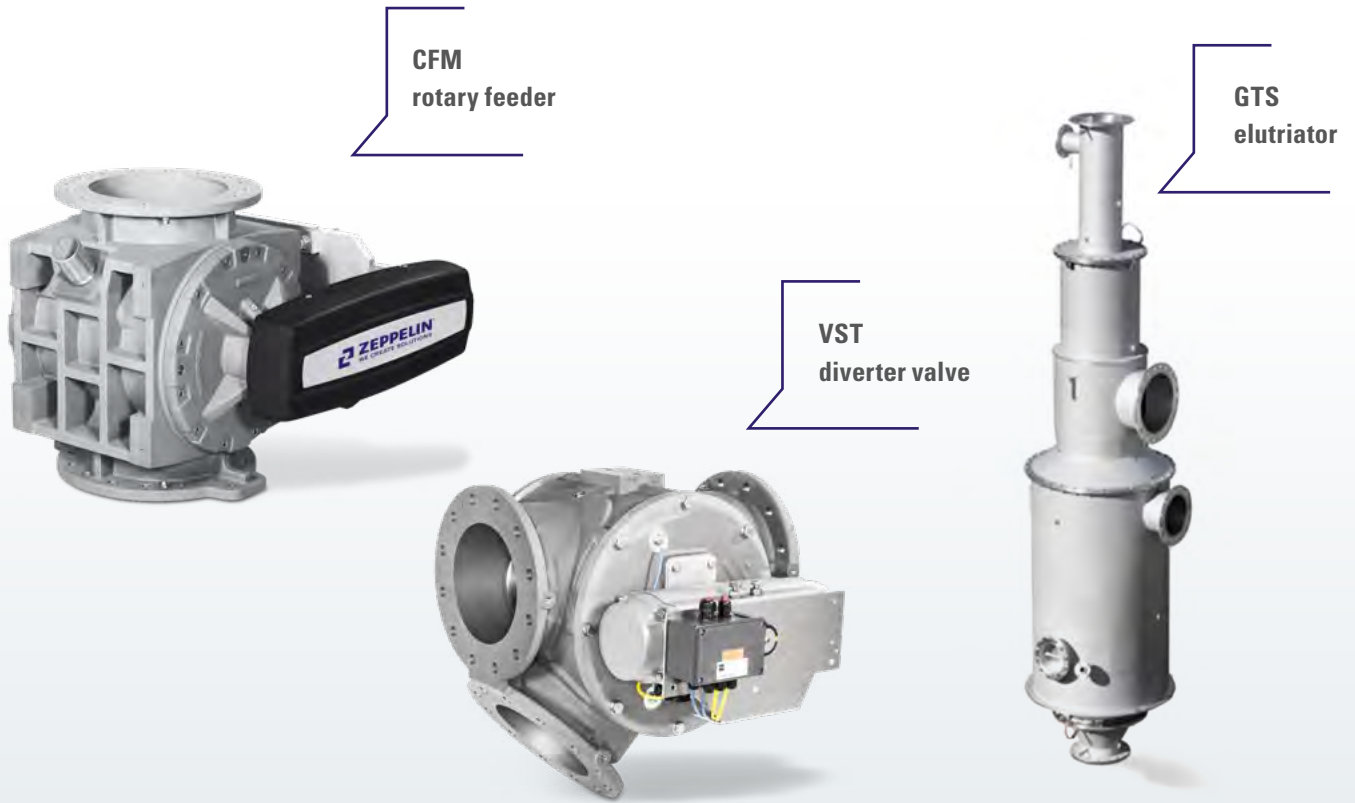
### **BLENDING WITH SYSTEM**

As key components, blenders and silos are an essential component of your plant. Zeppelin Systems is not only setting standards here: We deliver systems in which all components are optimally coordinated with each other, thus ensuring an efficient and resource-saving process.

### **BLEND EFFECTIVELY – STORE SAFELY**

Process or raw material variations do not necessarily result in fluctuating product quality in polyolefin processing. With our blending silos, you can compensate for irregularities in good time. Depending on the powder or pellets, we offer different types of blending silos: from multi-pipe and multi-channel for large volumes, to the multi-flow version for small batches and technical plastics, to the flow-bed blender for bulk materials with particle sizes below 500 µm, such as powders.





**CFM  
rotary feeder**

**VST  
diverter valve**

**GTS  
elutriator**

# THE BENCHMARK FOR BULK HANDLING

Components: Designed for maximum performance.

Feeders from Zeppelin Systems are the key for discharge from silos or blenders as well as entry into the conveying systems. They deliver maximum performance as well as a high fill level and protect the product. They minimize leakage and stand out thanks to their innovative sealing systems, whether for powder or pellets.

Our valves direct the product in the right direction, used as a distribution or collection valve. Optimized sizes and state-of-the-art sealing systems enable maximum efficiency in daily use with minimal maintenance work. This includes our samplers for monitoring product quality: They provide an even surface

in bins, gravity pipes and also in conveying systems – so product deposits are no longer an issue.

## MAXIMUM PRODUCT PURITY IN CONTINUOUS OPERATION

Separators are used to clean plastic pellets in order to separate dust particles, strings and streamers. This cleaning process ensures that the pellets are of the highest possible quality before packaging or loading. Zeppelin Systems also offers a wide range of solutions depending on requirements and application – and always the optimal solution for your product.

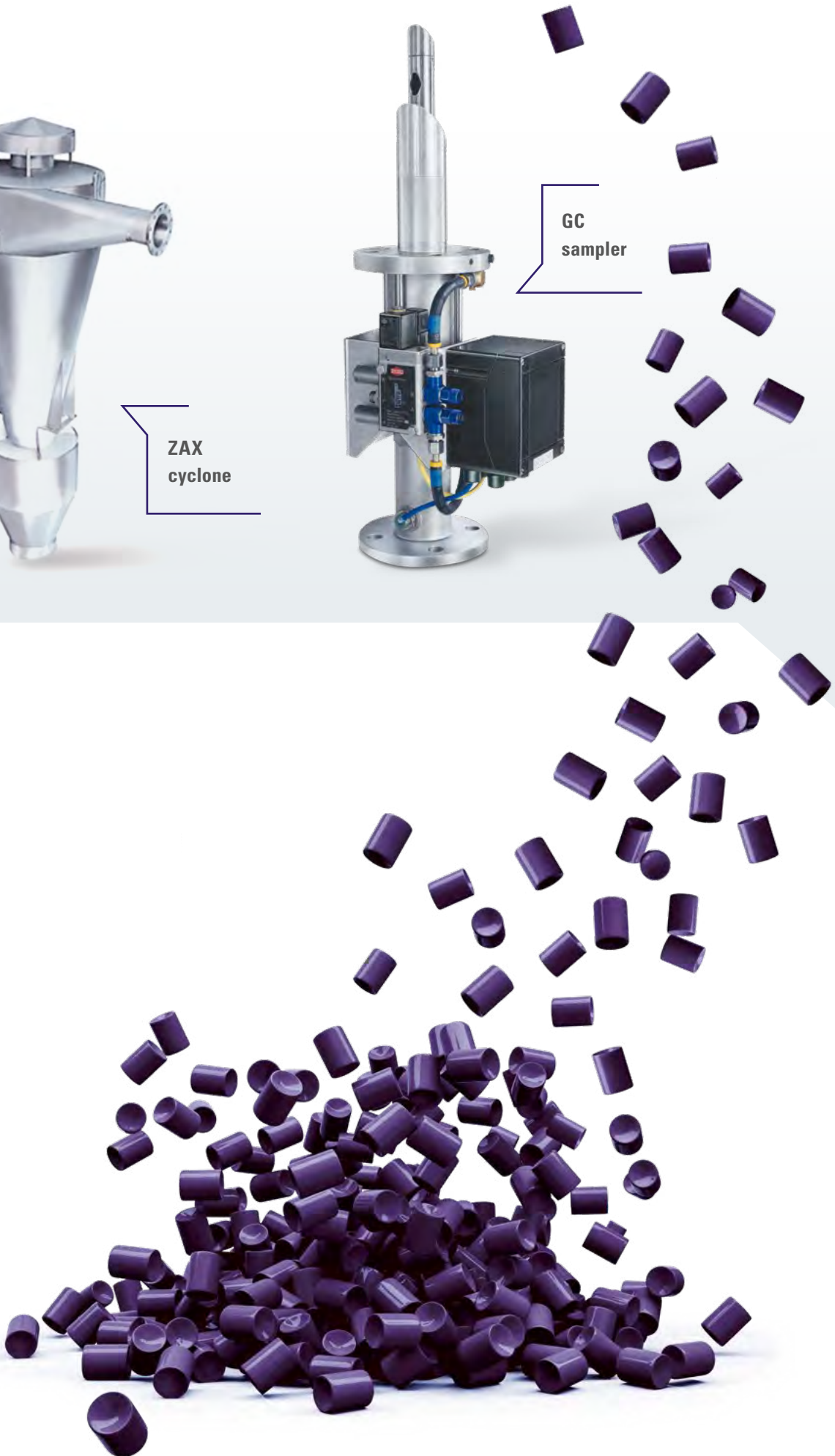




ZAX  
cyclone



GC  
sampler





## WE ARE AT HOME IN ALL MARKETS

... and this applies to our production as well as our team.

Our global network of subsidiaries worldwide includes project management capacities and suppliers as well as manufacturing facilities in the major economic regions. We adapt our system concept to the national regulations and legal requirements and offer you personnel for on-site support in the local language.

### **CLOSE TO OUR CUSTOMERS WORLDWIDE...**

Thanks to a dense supplier network in every location in the world, you benefit from shorter delivery times and good local currency pricing. You will benefit from Zeppelin Systems' global know-how and the experience of our multi-disciplined engineers who know your business.

We always develop the plant concept, design and calculations in close collaboration with the customer, therefore providing a one-stop service. This makes us your competent solution provider with a full service performance guarantee.

### **... WITH A PERSONAL TOUCH**

Whether as a partner, supplier or employer – the deciding factor is the person. At Zeppelin Systems, we value teamwork. To be internationally successful in plant engineering, you need to offer more than just outstanding technology – you need outstanding employees who understand customer needs, implement local requirements and put together the best plant package based on these factors. This is another reason why Zeppelin Systems can be found wherever the highest value is placed on functionality and process reliability: that is, all over the world.



# ZEPPELIN SYSTEMS 360° SERVICES

Professional support at every stage of your project.

Zeppelin Systems offers you service with real added value. We supply both turnkey plants and complete systems, mixers, silos and components – and are at your side every step of your project implementation. This applies not only to new plant construction, but also to modernization / revamping projects. This is how we ensure professional support and a smooth project process. Customized to your needs.

Choose from field-proven modules for all phases of your project. You can book the modules flexibly on a daily basis or as a package. We are happy to create tailor-made service solutions for you, which are optimally tailored to your system.

## **FASTER TO YOUR GOAL: YOUR ADVANTAGES AT A GLANCE**

- No hassle with incomplete deliveries:  
We inspect every packaging unit
- Optimal project coordination:  
We know how your system needs to be built
- Safety through professional competence:  
No one knows our plants better than we do
- Accelerated workflow: We work as a team
- Assured start of production: We ensure reliable deadlines through clear planning
- Optimum production performance:  
We provide continuous support



## **THE PACKAGE FOR YOUR PROJECT SUCCESS**

**1 INCOMING GOODS INSPECTION**

**2 ASSEMBLY / INSTALLATION**

**3 COMMISSIONING**

**4 PERFORMANCE TEST**

**5 TRAINING**

**6 SPARE PARTS SUPPLY**

**7 SERVICE CONTRACTS**



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