

## News

### **Early planning substantially reduces investment costs Zeppelin Systems presents innovative approaches to planning plants for technical plastics**

**Friedrichshafen, Germany, in October 2016: The market for technical plastics grows by approx. 4% yearly, and so do the requirements for the production processes. Every slight adjustment to the process not only has an impact on the quality of the end product, but also on the efficiency of the production process and of the internal material flow.**

New approaches are therefore required for planning plants for technical plastics. "The sooner we are involved in the planning process, the more efficiently the plant will operate afterwards," Hans Schneider, Head of Corporate Development at Zeppelin Systems, explains. In order to achieve this, Zeppelin Systems, as plant architect, has to manage in detail all processes in the production of technical plastics and act as system integrator. "As architects, we provide our customers with unbiased and manufacturer-independent advice to find the best possible solution. This may lead to a completely revised plant design, but one that would reduce the investment and operating costs substantially."

There are numerous key elements in the production process of technical plastics: the selection of the appropriate dosing and discharge modules for non-free flowing products, gas recirculation systems for product handling under inert gas atmosphere, dust explosion protection or the entire silo logistics including pneumatic conveying, product homogenization and dedusting.

The following are examples of simplifications in the production of polyamide.

#### **Example 1:**

Polyamides are very hygroscopic and generally require the addition of nitrogen after the granulation and drying processes in order to prevent moisture absorption. Nitrogen, however, is very expensive, so the systems have to be designed as very complex gas recirculation systems. The necessary nitrogen recirculation reduces the system's flexibility and requires additional piping. Aspects such as higher instrumentation requirements, nitrogen supply and discharge, and newly designed vessels for higher pressure, but also safety issues have to be taken into account. The plant's leak tightness is particularly important and additional protection systems for the operators, such as gas detectors in the plant, have to be foreseen. Zeppelin Systems therefore convinced a polyamide producer of a fundamental change in plant technology. After drying, the polyamide will be pneumatically conveyed in an open system with special dried air rather than in a nitrogen gas recirculation system, reducing

complexity and investment costs significantly. Protective systems are no longer necessary, instrumentation and silo design have been simplified and cheaper compressors can be used. For the operator, the biggest advantage is that the plant design has been greatly simplified, enabling a more flexible production.

**Example 2:**

The polyamide pellets were to be uniformly coated with a small amount of flow additives in a large-scale mixer in a single process step after granulation. The original process was designed as batch operation. Instead, a continuous coating process with addition and filtering of flow additives was developed with the customer, tested in the Technology Center and finally implemented. The shift from batch to continuous process not only saved money, it also created free space in the production area. "At the beginning of the project, the task was to optimize the mixer. The idea of rearranging the entire process would have never come to the customer's mind," Schneider adds. Now, there is not only considerably more space in the production area, the new coating process is only a fraction of the cost of the originally planned mixer.

All these measures, whether for new plants or for optimizing existing ones, have one thing in common: Zeppelin was involved at a very early stage of the planning process and was therefore able to pave the way for massive changes in the plant design. Other examples of how the plant operator can benefit from innovative planning processes can be seen at this year's K in Düsseldorf, Germany. Zeppelin will present itself in its new role as architect and its new approaches to efficient plant planning in hall 9, booth B41.

Legends:



Pictures: plastic\_processing \_1,\_2

Zeppelin plans and builds complete plants for technical plastics



Bild: Hans Schneider  
Manager Technical Corporate Development

## About the Zeppelin Group

The Zeppelin Group operates 190 sites around the world. In the 2015 fiscal year, its 7,800 employees generated sales of over 2.3 billion euros. Group-wide collaboration in the Zeppelin Group revolves around a management holding company and six strategic business units: Construction Equipment EU (sales and servicing of construction machines), Construction Equipment CIS (sales and servicing of construction and agricultural machines), Rental (rental and project solutions for the construction and industry sectors), Power Systems (drive, propulsion, traction, and energy systems) and Plant Engineering (engineering and plant engineering) as well as Digital Services and Solutions (new digital business models). Zeppelin GmbH is the Group holding company. It is legally domiciled in Friedrichshafen and has its head office in Garching near Munich, Germany. For more information, please visit [www.zeppelin.com](http://www.zeppelin.com).

## About Zeppelin Plant Engineering

The Strategic Business Unit (SGE) Zeppelin plant engineering with its 1.300 employees at 20 locations worldwide is specialized in the development, the production and the construction of components and systems for the handling (storage, conveying, mixing, metering and scaling) of high quality bulk materials. In this area Zeppelin Systems supports its customers from the project development phase via engineering, production, job site installation, commissioning to the customer service. The customers of the SGE plant engineering belong to the chemical industry, plastic producers and processors, the rubber and tyre industry as well as the food industry.

Further information under [www.zeppelin-systems.com](http://www.zeppelin-systems.com)

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