

News

Planning balance

Zeppelin Systems takes the lead in international large-scale plant construction in the field of plastics production

Friedrichshafen, Germany, in October 2016: International large-scale projects for plastics production plants are extremely complex. These plants, which total investment costs can very well reach hundreds of millions, are generally supervised by engineering, procurement and construction (EPC) companies as well as by the process licensors. Innovative plant engineering companies assume an increasingly important role in the process design of such plants.

Unlike many plant engineering companies, Zeppelin Systems goes beyond just simply meeting the specifications of the EPC companies. "In the end, it's the plant operator who is left with the results. A process that has not been optimally planned will affect the operator's daily business. Adjustments are hardly possible to make afterwards due to the size of the plant," Michael Pfrieder, Business Unit Manager Polyolefin Plants at Zeppelin Systems, explains. The company based in Friedrichshafen, Germany, is therefore taking a different approach and doesn't shy away from suggesting alternative plant designs to the given specifications. The company benefits from decades of international experience in manufacturing plants for plastics producers. "We know which technology is state-of-the-art and this is why we were often able to help the end customer lower his investment and operation costs," Pfrieder says and adds two examples to illustrate his point:

Example: Production of polypropylene pellets

Although removing monomers from plastics is a common process, there is still room for optimization. The EPC specification was to remove the monomers right after the production process and then to store the powder in a storage silo. This closed loop process design, however, required silos capable of withstanding a very high pressure, which naturally leads to very high costs. The extrusion process in which more monomers are formed was placed after storage. Zeppelin therefore suggested that degassing be placed at the end of the extrusion process. After going through underwater pelletizing, the pellets are now heated, degassed and cooled again in a process integrated in the conveying system before they are transported to the mixing silo. The plastics producer not only benefitted from lower investment costs (expensive pressurized silos no longer necessary), but also from an improvement in the quality of the end product. "We were only able to suggest these plant modifications because we have field experience in the matter. We also simulated the process in our Technology Center and were able to confirm that it does work," Pfrieder explains.

Example: Production of PE and PP pellets

Another example comes from storage. In the original EPC specifications, four bagging silos with four separator systems were foreseen. For the EPC companies, this was a reasonable approach as simple device multiplication reduced some planning costs for them. However, there was only one production line in the plant, which meant only one separator could be used. Zeppelin suggested using one central separator system that feeds gravimetrically into the four bagging silos. Although the steel structure was slightly more expensive, it allowed considerable savings by reducing the amount of separator systems from four to only one. "This is an excellent example how to reduce investment and operating cost without compromising on flexibility," Pfrieder emphasizes.

Zeppelin Systems always has the total system and the target technology in mind when planning a plant and decides for the optimal solution for process and operator rather than just executing specifications. "We strive for a balance between proven systems and individual solutions," Pfrieder explains the strategy. "Like an architect we decide for the best fitting subsystem or process for the plant."

Zeppelin Systems, the plant engineering specialist from Friedrichshafen, Germany, will demonstrate how to realize large plants for plastics at this year's K, hall 9, booth B41 in Düsseldorf, Germany.

Legends:



Pictures: Polyolefin-plants_1,_2,_3

Zeppelin is the world leading plant engineer for plastics producers and forwarders.



Michael Pfrieder
Business Unit Manager Polyolefin Plants

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.

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.

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