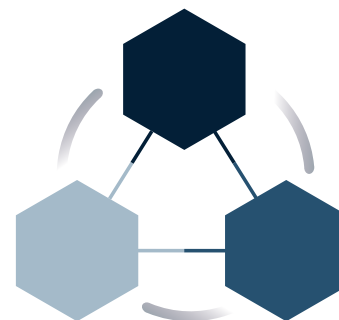


Modular Production

When small parts add up to big things – the benefits of modular production

As demand increases for individual solutions and small batches, product and innovation cycles in many industries are becoming shorter and shorter. The pharmaceutical and process industries, for example, are impacted particularly by these new challenges. However, conventionally designed process engineering facilities in the chemical and food & beverage sectors do not typically provide the flexibility required to meet these challenges.



SIMPLIFY THE PRODUCTION PROCESS WITH MODULARIZATION

Digitalization and modularization provide solutions to meet these new challenges. Modular production breaks down the overall activity into small parts and streamlines the process. In contrast to the old, monolithic view of production systems, a modular approach divides the production process into individual services and standardizes these. Logically interconnected, the individual modules can be reconfigured in virtually unlimited combinations (as in a Plug & Produce model). The result is a high-performance solution for agile production that not only provides benefits for the pharmaceutical and process industries, but will also revolutionize production across a range of industries.

MODULE TYPE PACKAGE – A PARADIGM SHIFT IN PRODUCTION

The basic requirement for end-to-end modularization in production is a standardized definition of the information from the individual modules. Standardized definitions are based on the cross-industry and cross-manufacturer "MTP" (Module Type Package) standards. The package units are defined in zenon according to the MTP information model. The functions of the respective module can be managed via services. All information is provided in a standardized format and can thus be integrated in a higher-level process orchestration layer (zenon POL).

zenon POL and zenon Engineering Studio connect with each other automatically. As a result, all work steps in Engineering Studio are automated via the POL and are transferred to zenon Service Engine. This creates a process control system (PCS) or distributed control system (DCS) generated fully automatically in just a few steps.

CROSS-INDUSTRY BENEFITS OF MODULAR PRODUCTION

Modular production provides the following benefits across industries:

- ▶ **50%* faster time to market**
Modular production systems shorten time to market significantly, because many of the system engineering activities are completed using prefabricated modules. Less effort is required to integrate these modules in the POL. The scaling from laboratory to production is also significantly easier and this reduces product development time.
- ▶ **Maximum flexibility**
Modularization also improves flexibility in terms of system utilization because modular units can be reused or replaced easily without any new engineering effort. The approach is also manufacturer-agnostic, which further improves flexibility.
- ▶ **40% lower production costs***
The efficient design of modular systems reduces the initialization or conversion costs for a production system. The lower production costs are particularly evident when manufacturing in small batches.

*Source: ISBN: 978-3-89746-191-2 Modular Plants

FAST FACTS

- ▶ zenon supports VDI/VDE/NAMUR 2658 Standards 1-4
- ▶ Modularization of equipment/package units in accordance with MTP standards
- ▶ Centrally manage all MTP-compatible modules (PEAs)
- ▶ Automatically generate the POL
- ▶ Batch-based recipe management in accordance with ISA 88