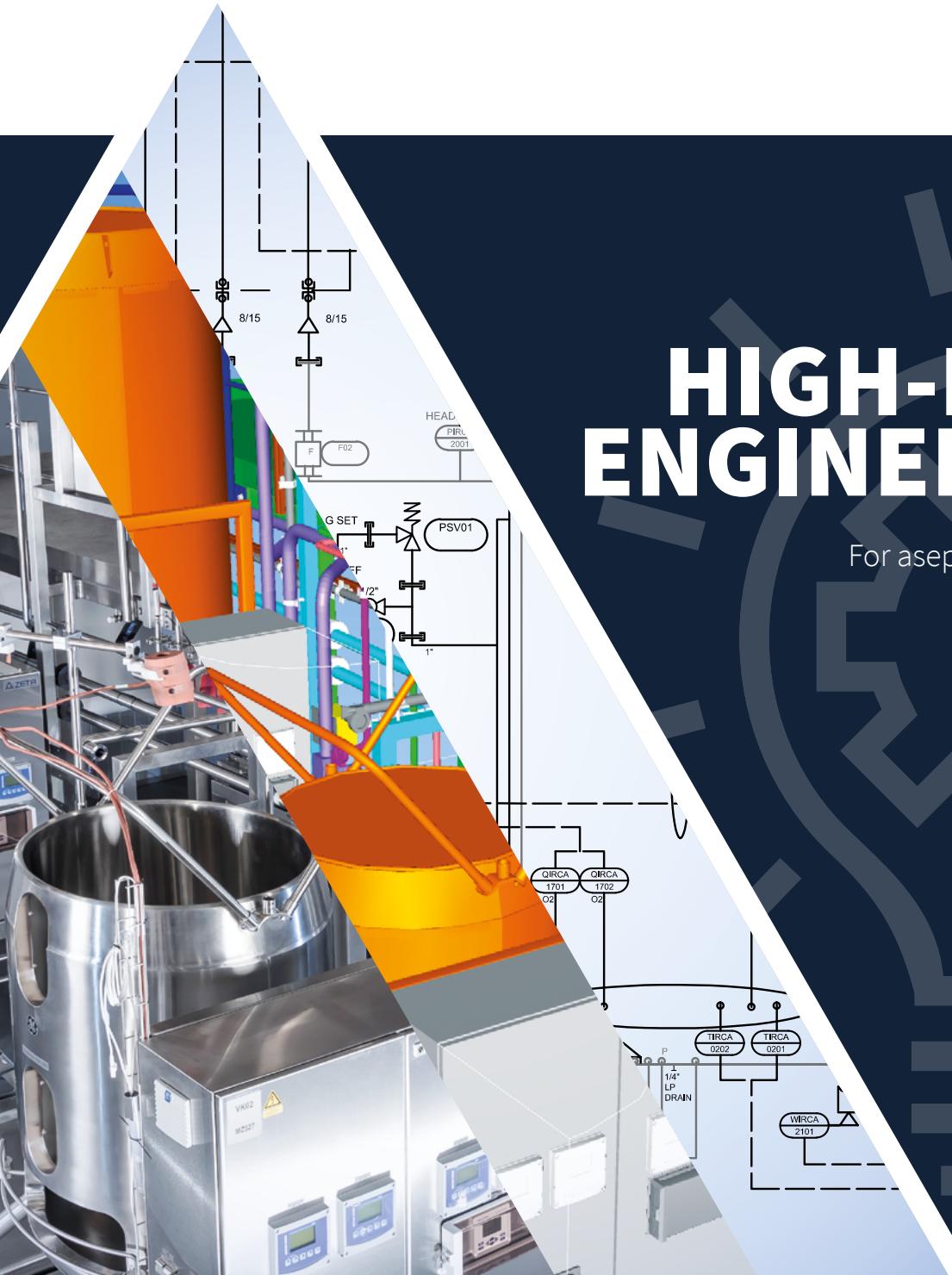




ZETA HIGH-LEVEL ENGINEERING

For aseptic process solutions



INTEGRATED ENGINEERING

two practical applications out of many

Perfusion Fermentation Systems



The processes with continuous removal of spent media and parallel refeeding requires a highly complex engineering solution. ZETA's bioengineering experts are close to the customer to design the optimal production process!

Scope:

- full-scope delivery of preparation vessel for CHO production

ZETA Approach:

- customized system design enables cleaning
- maintenance of long-term sterility verified using bioreactor tests
- strict isolation of areas reduces risk of cross-contamination

Application:

- different mammalian cell fermentations

Cell Culture Lines & Media Preparation Systems

ZETA created several complex cell culture lines from 50 L to 22.000 L bioreactors and media preparation systems. The main challenges of these projects are time-to-market and cost efficiency! To meet the needs ZETA has been developing new project strategies and engineering concepts for successfull fast-track-projects.

Scope:

- Process Development
- Scale Up
- Bioreactor and Agitator Design
- Basic/Detail Engineering
- Fabrication & Installation
- Comissioning & FAT
- Delivery and Installation

ZETA Approach:

- Efficient project management
- Compact superskid approach
- Safe, functional and mantainable design

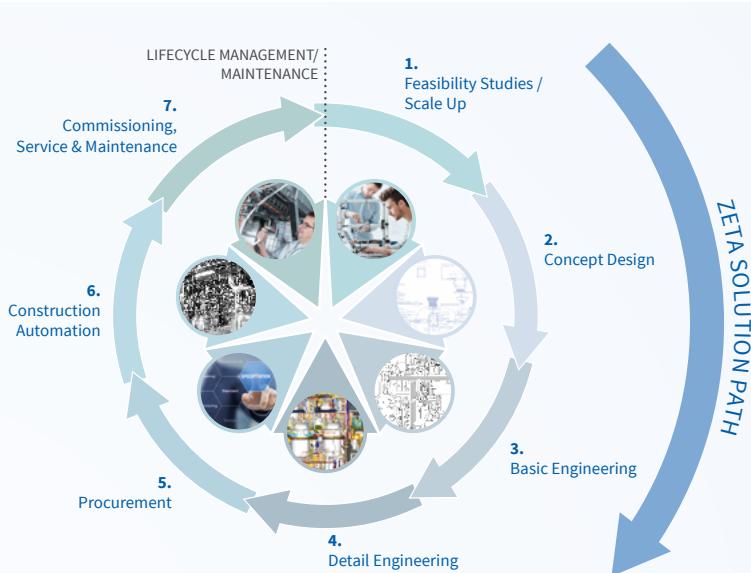
Application:

- different mammalian cell fermentations



FIRST TO MARKET

thanks to first-class-engineering & services by ZETA



The **ZETA Solution Path** includes a comprehensive repertoire of engineering and services that helps to develop the **best project strategy**, to discover innovation and savings potentials and to minimize risks.

According to the needs of each phase of the product development

process, based on the established **One-Stop-Solution** system starting during **Scale up** phase, ZETA offers feasibility studies, concept design, basic to detail engineering as well as the manufacturing, automation, installation, commissioning and the start up of the production plant.

The advantages are clear:

ZETA's many years of experience as a plant manufacturer together with **best-in-class engineering** competence avoid unnecessary error costs in scale-up, **minimize costly interfaces** between engineering and manufacturing and ensure an optimized production plant design.

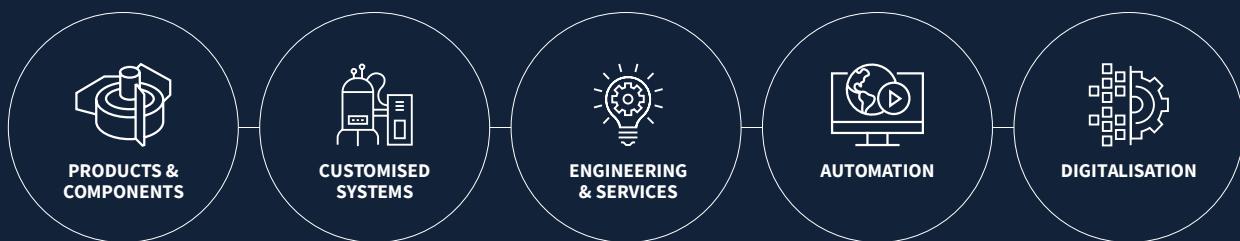
At ZETA thinking and doing are networked intelligently across all aspects of the development process. The choice of an appropriate **automation solution** is a central task, which is crucial for the successful plant operation during the entire life cycle of a plant.

With its nine subsidiaries in Europe and a highly qualified staff of some 550 people ZETA is global supplier in the industry. **Cutting edge consultancy** by ZETA moves projects towards success.



INNOVATIVE SOLUTIONS FOR OUR CUSTOMERS

EVOLUTION OF TECHNOLOGY



ZETA Business Activities

EPCM contractor
Plant engineering
HVAC, cleanroom & BMS/EMS design
Decarbonization
Automation
Digitalisation
Qualification
Maintenance & Upgrades
Research & Development

Customer Benefits

Ultra-fast projects & faster time to market
End-to-end solutions from a single source
Customized solutions
GMP-/FDA-Compliance
Deep process understanding
Experience in complex biologics
High process reliability
Scale-up capabilities
Own innolab ZETA TechCenter

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