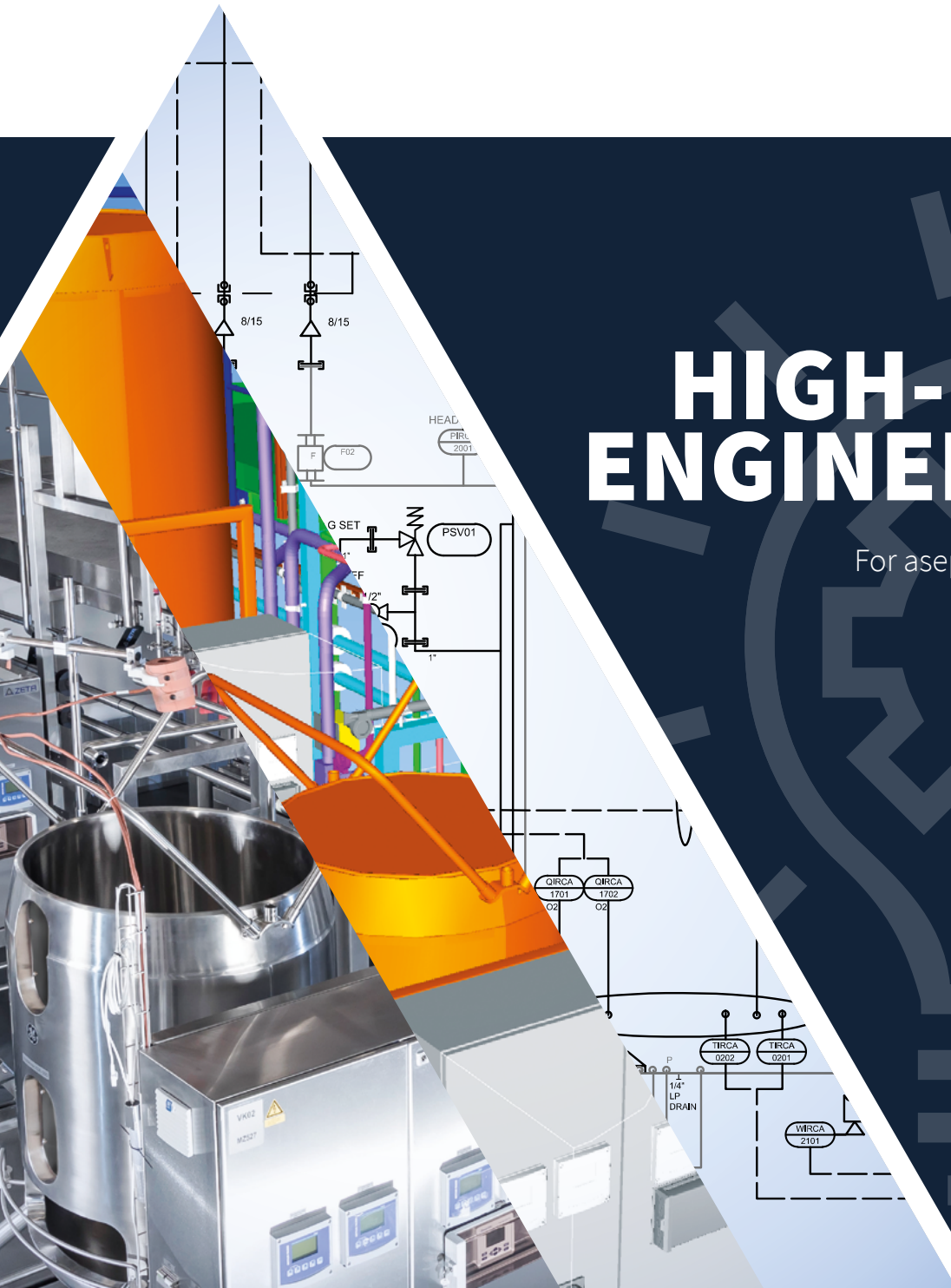


# ZETA HIGH-LEVEL ENGINEERING

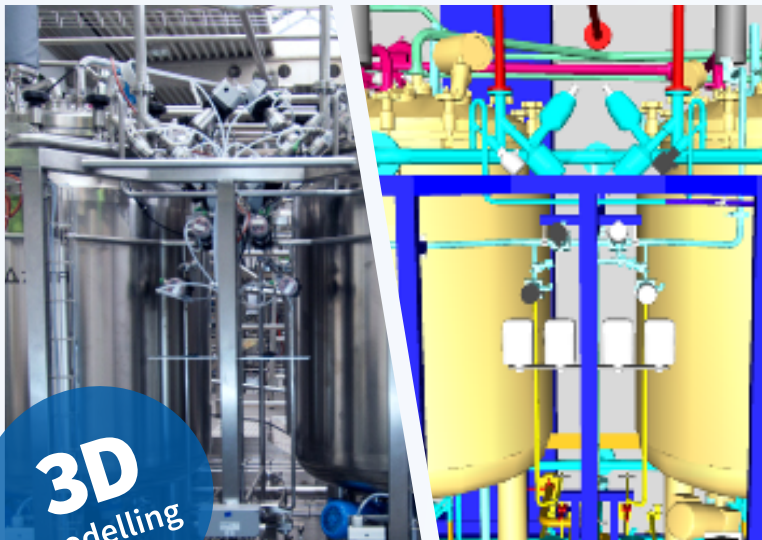
For aseptic process solutions



# 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 successful fast-track-projects.

### Scope:

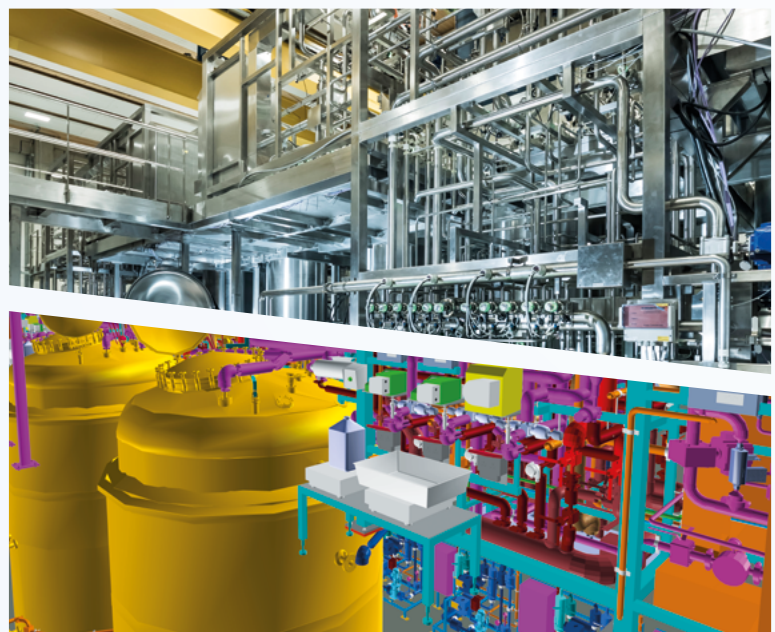
- Process Development
- Scale Up
- Bioreactor and Agitator Design
- Basic/Detail Engineering
- Fabrication & Installation
- Commissioning & FAT
- Delivery and Installation

### ZETA Approach:

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

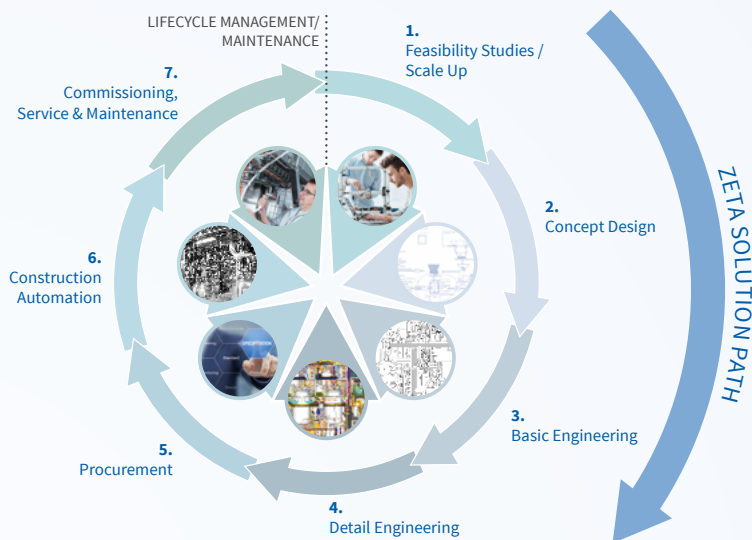
### Application:

- 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.

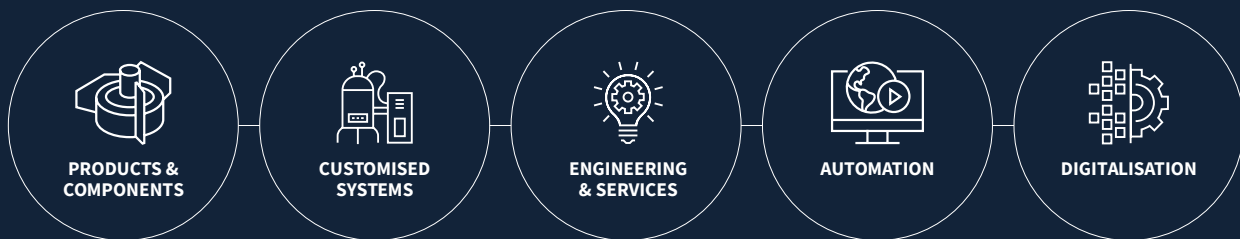
With its nine subsidiaries in Europe and a highly qualified staff of some 550 people ZETA is global supplier in the industry. **Cutting edge consultancy** by ZETA moves projects towards success.





# 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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