

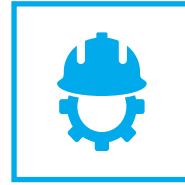


**EPC** GROUP

WHO WE ARE



TECHNOLOGY LICENSING



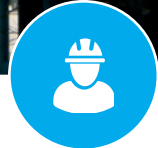
ENGINEERING SERVICES



PLANT CONSTRUCTION



**>1000**  
Projects



**> 170**  
Engineers & Specialists



**> 150 years**  
of Experience

- ✓ As a general contractor we are offering you all the necessary services required for the successful delivery of your project. We are experts in the fields of polymers & fibers, as well as in chemical plant construction.
- ✓ Plant revamping, optimization, maintenance work and staff training are integral parts of our extensive services.



- Chemistry
- Pharmaceuticals & Fine Chemistry
- Polymers & Fibers
- Renewable Energies
- Biotechnologies
- Engineering Services & Infrastructure



- Construction Engineering
- Infrastructure
- Building & Civil Engineering
- Project Management
- Technical Building Equipment

A MEMBER OF  
**EPC** GROUP

IDEAS INSIDE 



## Tailor-Made Revamp Solutions

Plant Modernization | Revamp | Capacity Increase



### CONTACT

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EPC Group is certified per DIN EN ISO 9001



IDEAS INSIDE 

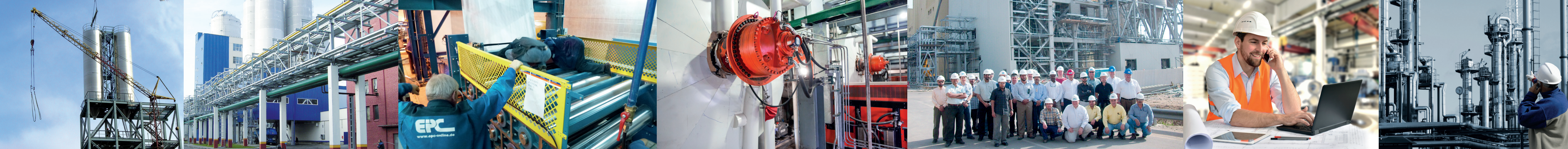
### Sustainable Business Solutions for PC, PET, PBT and PET-G

Revamp, capacity increase or plant modernization is in many cases the right solution to re-establish competitiveness and comply with market demands. We are offering tailor-made solutions for the revamping of existing polycondensation plants. We will eliminate existing bottlenecks and identify the optimal investment costs and plant output with regards to quantity and product quality.

EPC Revamp & Modernization Solutions are the most cost-effective alternative to investing in a new plant. Depending on the plant configuration, a return on investment can be achieved in less than two years.

A Member of





EPC PCvantage®  
Strategic technology upgrade of your polymer plant

Revamp is in many cases the right solution to re-establish competitiveness and comply with new market demands. During the first step, a plant assessment will be carried out as the basis for a feasibility study, to identify the bottlenecks and potentials of the plant. Taking into consideration the local conditions and future market demands, various revamp concepts will be created.

The feasibility study will also consider the operation costs before and after the revamp; a significant reduction of the fix costs can often be realized. The comparison of these various scenarios will help to determine the optimal investment costs, plant output and operation costs after revamp.

A Technological Feasibility Study shall lead to the creation of a business-technological concept of possible scenarios, targeting:

- Best market-driven retrofit-strategy for the client
- Very competitive production cost
- High flexibility to adapt to market changes
- Most feasible Return on Investment (ROI)
- Minimum plant shut-down time during implementation of revamping scope

 Polycondensation capacity lift is a “Must” to stay competitive through the “Economics-of-Scale”.

5 Steps in the creation of the most effective revamping concept

**STEP 1**  
Plant Assessment

- Market trends analysis
- Potentials of the plant
- Bottlenecks

**STEP 2**  
Objectives

- Future portfolio
- Future capacity and market

**STEP 3**  
Possible Solutions

- Future production plan
- Plant revamp scenarios

**STEP 4**  
Feasibility

- Best available technology vs. new technology development

**STEP 5**  
Conclusion

- Tailor made Revamp Solution by 

Advanced Process Control – insidePC®

EPC has developed insidePC®, an Advanced Plant Process Control System. The system ensures a consistent product quality even with fluctuating raw material qualities and a simplified PC Polycondensation plant operation.

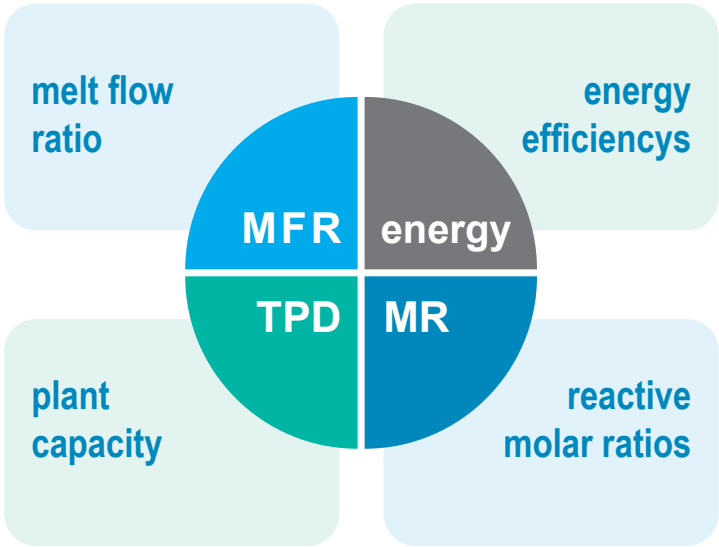
The user interface can be adapted to individual requirements. Thanks to modern calculations and automation, the MFR (Melt flow ratio) can be changed automatically for different products and applications.

The following features are integrated:

- Real-time process material balancing
- Individual MFR adjustment
- Reactive molar ratio control / correction
- Plant throughput control

Customized Solution:

- Consistent Product Quality
- Compensation of raw materials fluctuation
- Simplified PC Plant Operation
- All Process Parameter =  $f$  (throughput)



EPC PETvantage® – Techno-economic objectives



- Capacity lift potential: 50–100 % of name plate capacity
- Reasonable investment cost requiring no change of existing reactors
- Smart project execution: Pre-Assembly of new equipment and plan down-time < 4 weeks
- Plant conversion for alternative raw materials, or production of new polymers (e.g from textile to bottle-PET, PET-G, PBAT, etc.).
- Flexibilization through polymers modification for specialties application
- Develop a circular economy concept to utilize resources and energy in a sustainable way



YOU WOULD LIKE TO LEARN MORE ABOUT OUR SERVICES?

Let us know!  
We are looking forward to helping you.



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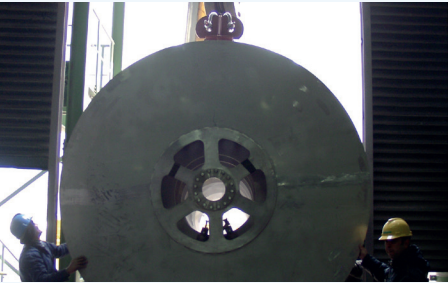
Selected references of our Revamp Conceptions



**Trevira®**  
De-bottlenecking of existing esterification unit to reach 175% of its capacity before. Integration of second polycondensation line for a capacity of 125% (additional). Special polymer melt line distribution for direct spinning of textile fibre specialties.  
  
Bobingen / Germany



**IBN Rushd (a SABIC affiliate)**  
Process- and mechanical re-design and installation of EPC sophisticated upgrade technology, including the most modern process control software insidePET. Special remark: No change of melt phase reactors was required. Installation of an additional SSP plant.  
  
Yanbu / Saudi Arabia



**ARTENIUS HELLAS**  
Process and mechanical re-design and supply of a new agitator for a finisher reactor, incl. sophisticated hydraulic drive system. Vacuum system upgrade, polymer pumps, heat distribution. Implementation of EPC's polycondensation process control for molar ratios, intrinsic viscosity and improved throughput control.  
  
Volos / Greece