

EKATO RXT – EKATO Reactors and Reaction Technology

Modern reactor technology has made significant advances in recent years. The profitability of existing plants can often be significantly increased at moderate costs – by simply replacing the reactor internals and agitator. For new plants the latest technical advances should always be assessed in order to achieve optimal process efficiency.

1 Consultancy

2 Optimized Designs

3 ELA 5 Miniplant

4 Process Studies

5 Mechanical Engineering

6 Design of Vessels, Agitators, Internals, etc.

Advanced Process Solutions

In an increasingly competitive world, process plant operators need to focus on maximizing productivity of existing plants as well as new equipment. Recent advances in reactor technology often enable large improvements for a very modest investment. Simply upgrading the reactor agitator and internals can have a large impact on the profitability of existing production plants.

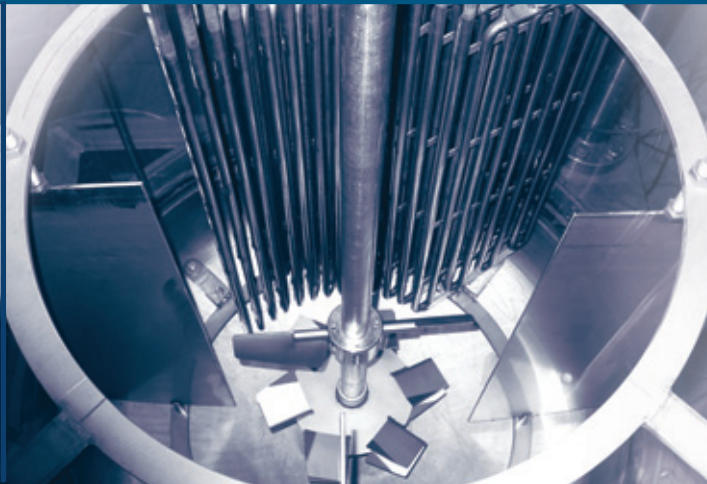
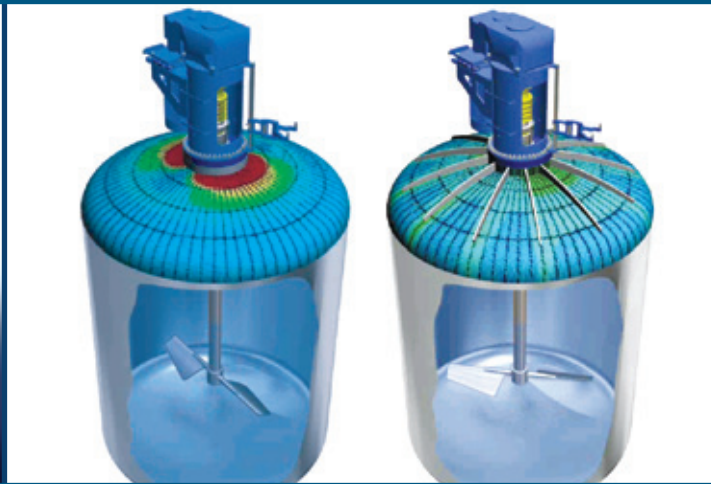
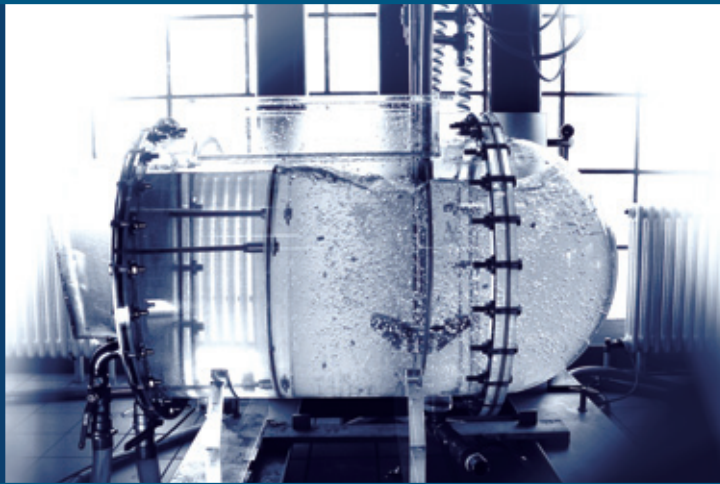
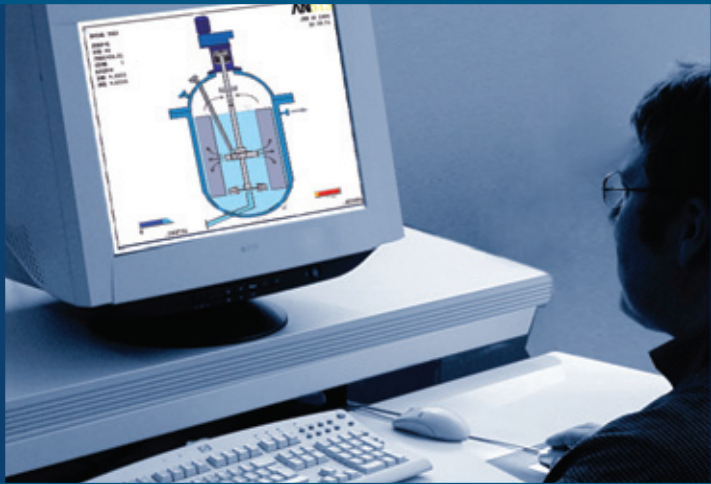
EKATO has supplied agitators up to 1.9 MW and reactors of up to 500 cubic meters. Based on our in-depth understanding of process engineering, fluid mechanics and patented agitation technology, EKATO has developed optimized designs for some of the most complex process applications:

The ELA 5 is a process development >miniplant< with which reactions can be performed in well defined fluid dynamic conditions. This provides significant advantages for laboratory process development studies:

Based on plant studies or large-scale laboratory simulations, complex behavior of process plant and equipment can be assessed and the design optimized. Specific solutions tailored to your process plant:

Plant equipment reliability and operational safety can be significantly improved using Finite Element Analysis. Deflections, stresses and natural frequencies in agitated vessels and internals can be calculated and potential problems can be identified to allow fast solution designs.

EKATO RXT's scope of supply usually includes the reactor, the agitator and vessel internals which decisively influence the mixing process. Important aspects of the reactor design have to be studied carefully to identify potential interactions and their influence on process performance.



- EKATO has a continuous program of process engineering and mechanical research, and constantly updates it's design procedures based on new developments.
- Working closely with your specialists we can help identify cost-effective improvements to optimize productivity of complex processes.

- Gas-liquid reactions
- Bioreactors
 - Hydrogenation reactors
 - Air oxidation reactors

- Slurry processing
- Pressure autoclaves

- High viscosity processing
- Polycondensation reactors

- World scale reactors
- Internal loop reactors

- Data from the trials can be directly used for design of production-scale plants together with the known performance characteristic of the agitator systems.
- The design includes not only the vessel and agitator design but also internals such as heat transfer surfaces, baffles etc.

- EKATO technology specialists work closely together with your team to develop in-depth understanding of process behaviour, optimize plant design etc.
- Trials are supported by an experienced team of technicians in EKATO's technical center and research workshop.

- For existing plants, vibration analysis or post modelling may detect causes of high wear or frequent maintenance requirements.
- Recommended plant design improvements will target opportunities for cost effective improvements.

- Pressure vessel design (jacketed or unjacketed)
- Baffles and internals
- Heat transfer elements (coils or plates)
- Feed systems and distributors
- CIP, SIP, GMP (if applicable)
- Agitator and drive systems

EKATO Rühr- und Mischtechnik GmbH – the worldwide leader in mixing technology – has acquired an in-depth knowledge concerning the major processes within the chemical industry. This core competence has been gathered together to create a new business field called »Reactors and Reaction Technology (RXT)« which now enables EKATO to offer a complete scope of services starting with the process engineering design stage of a reactor followed by the mechanical design up to the delivery of complete units.

E K A T O R X T T E C H N O L O G Y

RXT TECHNOLOGY

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Project Management

Many procedures and project steps have to be considered during the supply of a complex chemical reactor from the very early chemical design considerations through commissioning and start-up. Usually the services of several companies have to be coordinated to achieve the project objectives on schedule. EKATO RXT is able to act as a single source supplier, handling the project requirements within the defined scope.

- Process Design**
Our highly qualified R&D engineers have many years experience of assessing process requirements for agitated reactor design and providing reliable process engineering designs.
- Mechanical Design**
The mechanical engineering design department offers skills such as finite element or vibration analysis as well as detailed knowledge of vessels and the various internal components encountered.
- Purchasing**
Effective project management supports the procurement and production processes. Expediting and quality assurance of equipment from sub suppliers will be ensured by the EKATO quality management.
- Documentation**
Quality control to international standards and appropriate documentation support the design and supply process.
- Installation supervision and start-up support**
To ensure optimal performance our process engineers are also available for commissioning and start up.



EKATO RMT

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