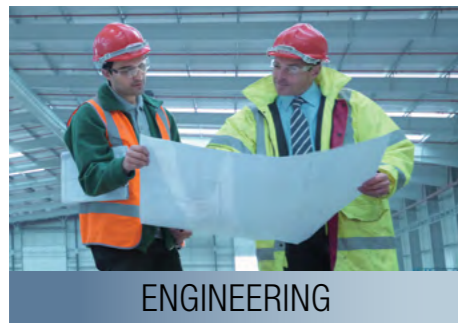


# CONSULTING & ENGINEERING SOLUTIONS



# 360° CUSTOMIZED INDUSTRIAL SOLUTIONS

Rieckermann provides consulting and engineering, state-of-the-art machinery, and technical services for several industries. With 130 years of experience, our international team of experts and local representatives in Asia and the Middle East deliver customized high-quality solutions along the whole value chain of industrial production and processes.



ENGINEERING

### Rieckermann consulting & engineering solutions

- Site master planning, feasibility studies & conceptual design
- Engineering & design
- Procurement
- Construction management
- Commissioning, validation & training
- EU GMP compliance services



MACHINERY

### Rieckermann process technology

- Machinery & industrial equipment
- Machinery procurement & contracting
- Global trade finance
- Commercial licensing & consulting
- Consumables & raw materials

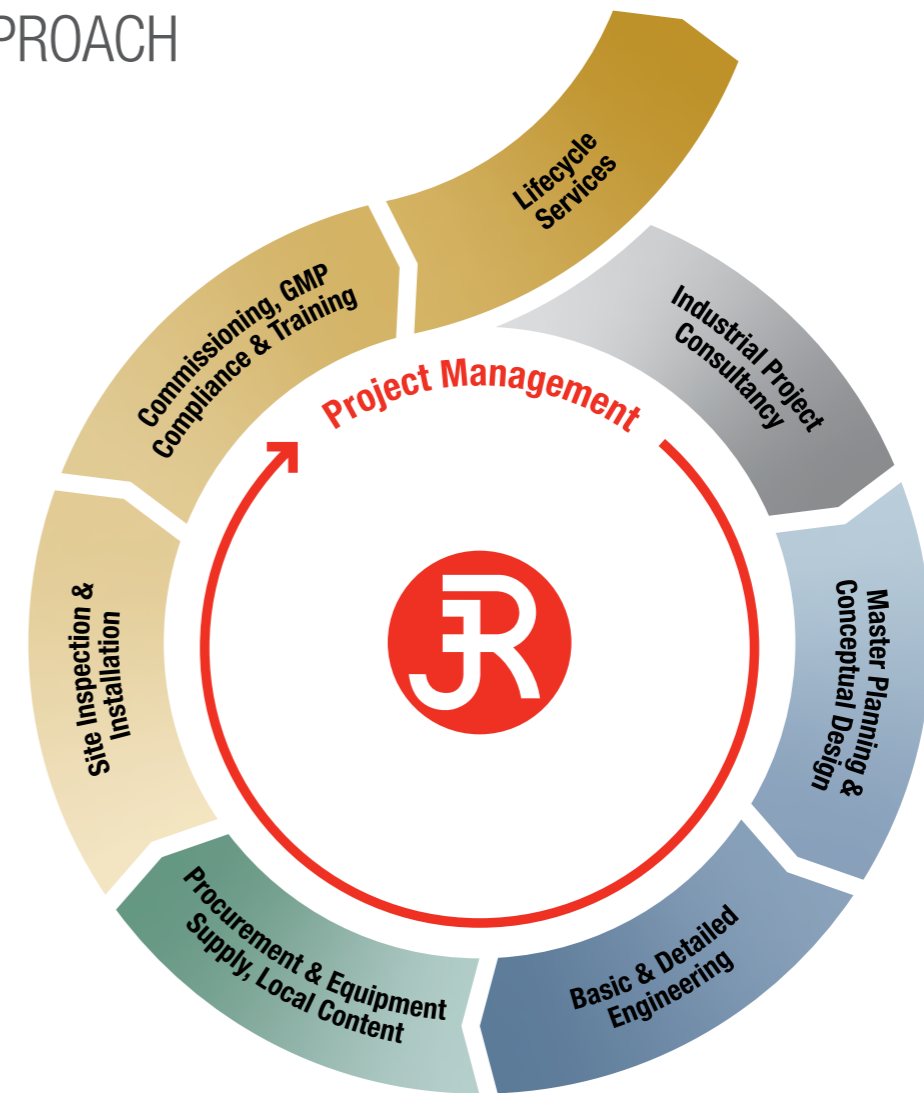


TECHNICAL SERVICES

### Rieckermann technical services

- FAT/SAT
- Local content management
- Installation & calibration
- Training & local language support
- After sales service & maintenance
- Spare parts

## OUR FULL-SERVICE APPROACH



Our Solution Circle gives you an overview of how we can support you to develop, build and improve your industrial production and processes.

We customize to your individual needs – from consultancy, concept design, equipment supply, to the full scope or any combination of project services.

The key to bringing your project in on time, on budget and right first time is successful project management.

With that we will improve delivery times and focus on the reliable long-term performance and efficiency of your new production facility.

### Rieckermann project management

- Integrated planning & consulting
- Global trade finance
- Full scope expertise & interface handling
- Experience with local conditions & international standards
- Life long service & support





**WE PLAN YOUR PLANT  
WE BUILD YOUR  
SUCCESS**

## CONSULTING & ENGINEERING SOLUTIONS BY RIECKERMANN

Rieckermann offers consulting and complete engineering solutions to a range of industries including pharmaceutical, food processing, oil & gas, and environmental industries with specific predefined and measurable deliverables.

We have an extensive track record of successful projects in the pharmaceutical and life sciences industries as well as considerable experience in the food, oil & gas, and environmental industries.

Operating across the Middle East and Asia, we take pride in delivering quality assured results for our clients in accordance with international standards and beyond.

Our engineering team provides engineering design, procurement, construction management, commissioning, qualification & validation (EPCmV) as well as technical advice, project feasibility studies and project management.

### Consulting & engineering solutions

- Site master planning, feasibility studies & conceptual design
- Engineering & design
- Procurement
- Construction management
- Commissioning, validation & training
- EU GMP compliance services

The performance of your manufacturing facilities is the key to the success of your business and this is impacted by the quality of your overall project planning, engineering design and project management.

Our team of experts will deliver your project successfully, ensuring that your facilities run as intended and comply with all relevant standards and regulations, while keeping within established timeline and budget constraints.



PHARMACEUTICAL & LIFE SCIENCES

We have successfully delivered projects for biotechnology, vaccines, small and large volume parenterals, active pharmaceutical ingredient (API), oral solid dosage (OSD), non-sterile liquids, topical medications and various medical devices production facilities and turn-key pharmaceutical plants in accordance with WHO, PIC/S, EUGMP, USFDA and local GMP standards.



FOOD PROCESSING

Within the food processing industry we have successfully completed various projects in Asia such as dairy processing, frozen foods production, ready meals production, beverages production, poultry processing, fruits processing, and food ingredient facilities in accordance with local and international food standards.



ENVIRONMENTAL TECHNOLOGIES

Rieckermann engineering designs and manages the implementation of processes, automation and online monitoring for large and small-scale solid waste treatment (recycling, separation, waste-to-energy, detoxification), municipal and industrial waste water and sludge treatment as well as exhaust and flue gas treatment processes.



OIL & GAS

In the oil and gas industry, we have realized various projects, including facility assessments, green and brown field facility designs, upgrades and refurbishments, automation design and implementation, as well as project and site management for petrochemical plants, terminals, tank farms, and storage facilities in compliance with international standards.

## TIMELY PLANNING FOR A SMOOTH LAUNCH

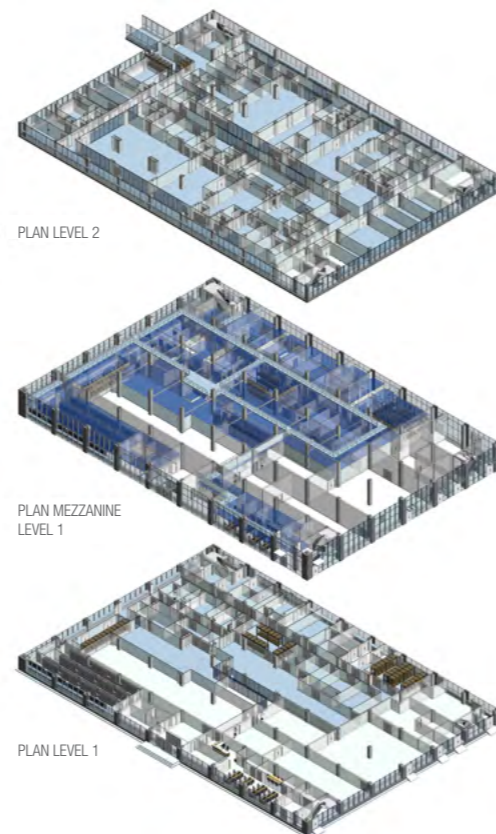
# FEASIBILITY STUDIES, SITE MASTER PLANNING & CONCEPTUAL DESIGN

The design phase of a new facility lays the groundwork for the performance of your business. Well-founded conceptual design is crucial to the performance of any new facility because it influences not only your end product's quality but also your cost of production, your ability to deliver on time, and the safety of the operation.

**Our engineering design services always employ a comprehensive approach to meet your current & future needs.**

- Definition of best working practices
- Technology fit for purpose
- Optimization of capital investment & operating costs
- Assured product quality while achieving optimal manufacturing efficiency
- Compliance with international GMP & industrial safety standards
- Environmental impact

**Our conceptual design services will give your project the best possible start.**



### Strategic consulting & feasibility studies

We assist you to make critical decisions on your project viability by determining the financial outlay (CAPEX and OPEX), evaluating potential and current market trends, risk assessments, sales forecasts, and competitor analysis.

### Site master planning

In this phase, a site investigation will be conducted jointly with you to gather relevant information required to design the building areas, production space, and logistics movement, do the infrastructure planning and optimization for future expansion, as well as to meet regulatory compliance both locally and internationally.

With all these elements taken into consideration, visuals of the new facilities will be developed and presented to you.

### Conceptual design

Study defining the purpose of a project, the location and cost assessment. The development stage defining the type, utilization and location of machines, processes, and plant services within a factory to meet output, quality, safety, and regulatory demands; provides the operational philosophy, the layout and cost estimate.

Production building layouts will be developed based on the production equipment and operational requirements, to facilitate smooth production flow and maintenance works. Layouts will also be developed for laboratories, warehouses, offices, and other required support areas.

During this conceptual design phase, the initial project investment cost estimates will be established for our clients.



# ENGINEERING & DESIGN

## Qualified & experienced professionals

Rieckermann provides an exceptionally skilled team of architects and engineers to perfect your project, including process, mechanical, HVAC, electrical, automation, and validation specialists in the fields of pharmaceutical, life sciences, food processing, oil and gas, and environmental facilities.

## Basic engineering

The basic design phase will advance the design across the various engineering disciplines, including process, architectural, structural and civil, utilities, HVAC, electrical, and fire. The major objective of this phase is ensuring all major building elements, equipment, and systems are defined and accounted for in the overall design, and that everything is laid out in an optimal fashion, maximizing operational efficiency and minimizing costs.

The basic design will provide an approved set of drawings and documents defining the basis of design for the facility, allowing the project to subsequently be fully engineered with changes mitigated. Capital investment costs will be further refined to provide more accurate project cost estimates.

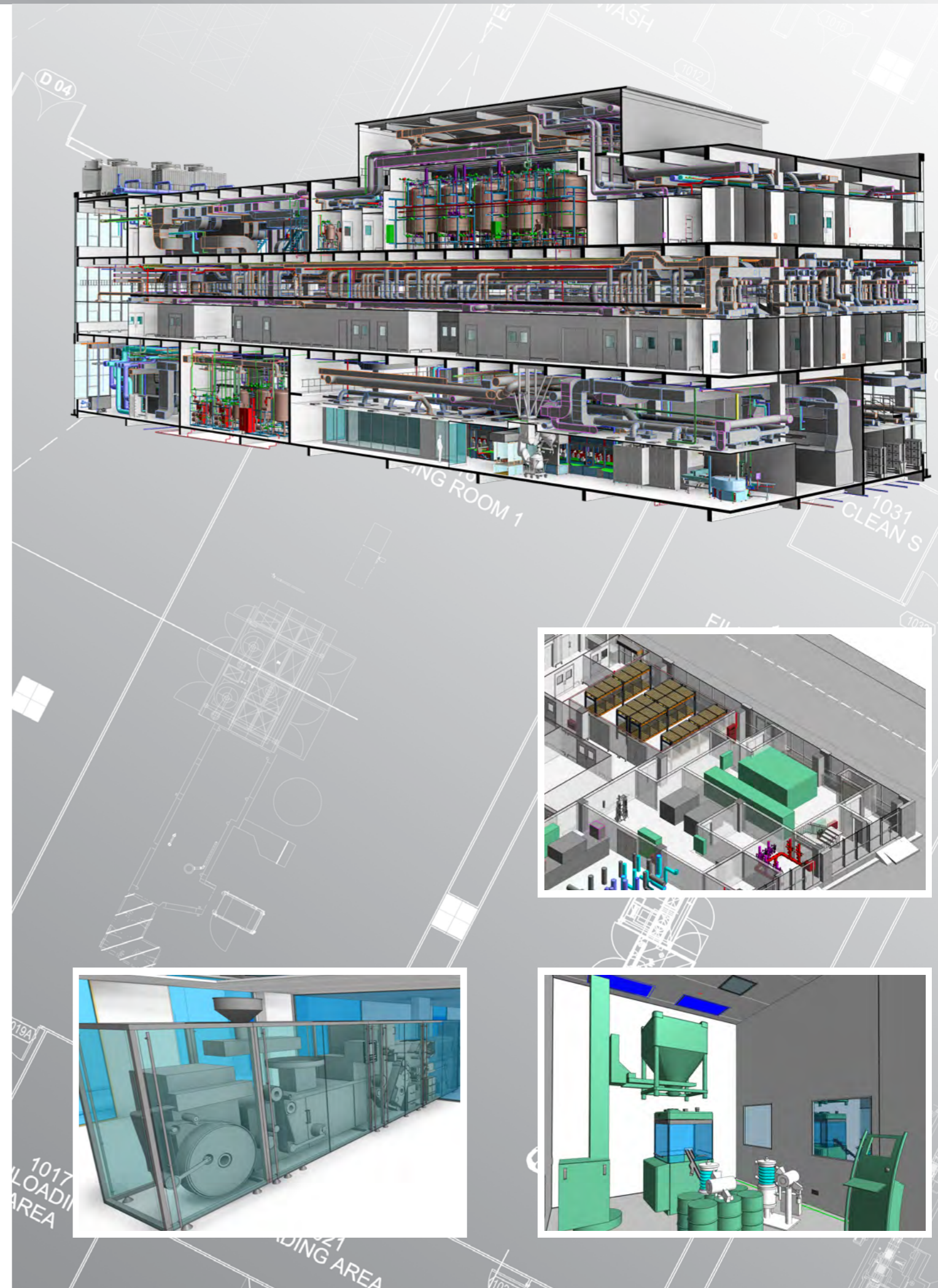
## Detailed engineering

Our detailed design package provides over 500 items – including all the drawings, specifications and documentation needed to progress the project into the implementation phase. As part of this engineering phase we produce a comprehensive package of technical information that will be used as a basis upon which to purchase, build, install, commission, validate and qualify your facilities and equipment.

## Your benefits

- Comprehensive & compliant designs
- Proven track record based on experience
- Flexible in customization & planning

**TURNING  
YOUR VISION  
INTO REALITY**





# PROCUREMENT INTEGRATED SERVICES

## Expertise & experience – customized solutions

Rieckermann's global presence and substantial industry experience have allowed us to establish strong partnerships with leading industry contractors and suppliers.

Our procurement personnel are experts in the planning and execution of procurement activities and our services extend from supplier pre-qualification through to evaluation and award recommendations.

Our established systems for supplier pre-qualification and bid evaluation provide a transparent and impartial approach and facilitate the right choice of vendors and suppliers for your project.

Thanks to our procurement process, you are armed with detailed technical knowledge and experience, resulting in the best possible solutions for your project needs.

**Rieckermann – your one-stop provider with non-stop support.**

## PMC Scope

Design/constructability review

Procurement support

Tenderer prequalification

Tender clarification

Tender evaluation

Construction management

Safety management

Progress monitoring & control

Quality assurance & control

Financial monitoring & control

Project close out

# CONSTRUCTION MANAGEMENT

## Safety first

From kick-off to handover, our project and construction management team will implement robust safety systems that clearly define the policies and procedures that must be followed in order to maintain a safe working environment.

We plan and organize your project methodically while motivating and guiding the people and resources involved.

The entire process is based on mutually agreed, predefined timelines and budget milestones. Our objective is to deliver maximum quality and transparency.

The scope and safety systems will be defined with you in the form of a project execution plan (PEP).

**WE GET YOUR  
PLANT RUNNING –  
ON TIME, ON BUDGET**



## QUALITY & COMPLIANCE CONSULTING

Rieckermann's consulting team has carried out many audits and brings to the table a wealth of knowledge and hands-on experience in GMP and GxP compliance and delivers solutions that fully meet your industry requirements.

### Our areas of expertise include

- Development & maintenance of compliant quality systems
- Continuous improvement planning
- GAP analysis
- Risk assessment & risk management
- Integration of compliance strategies into design
- Audit readiness inspections & remediation planning/execution
- GMP Training

Our detailed knowledge and understanding of USFDA, EU GMP and ISO standards across multiple industries is the result of our experience as production/QA personnel or as auditors working within production and QC/QA environments.

## COMMISSIONING, VALIDATION & TRAINING

### Commissioning, qualification & validation

Our C&Q engineers are proven and reliable partners in conducting commissioning and qualification (CQV) as well as validation studies.

We specialize in the management and execution of the facility's CQV activities including cleanrooms, utilities, production and laboratory equipment.

### Training

Rieckermann is your partner with extensive know-how. We can confidently deliver the knowledge and task-based training modules required for PIC/S and cGMP compliance. In addition to this, we organize and run our own cGMP conferences and provide individual training programs for all aspects of your quality management system.

Rieckermann will allocate a capable and committed team for all your compliance needs.

## EU GMP COMPLIANCE SERVICES

When it comes to achieving EU GMP compliance for your pharmaceutical production facility you cannot afford to take risks.

Rieckermann is fast becoming the first choice EU GMP compliance partner for manufacturers in the Asian region.

Why? Because Rieckermann offers comprehensive in-house EU GMP compliance services that will ensure a well-planned pathway towards EU market access.

### Our EU GMP compliance services in 5 phases

- Phase 1: EU GMP reviews, gap analysis, remediation
- Phase 2: GMP training
- Phase 3: EU GMP audit preparation
- Phase 4: EU GMP pre-inspection audit by EU GMP partner
- Phase 5: Final liaison with EU authorities

Our experienced consultants will train and lead your team towards successful EU GMP certification by creating a GMP culture and mindset that will leave the auditors in no doubt of your readiness to comply with EU GMP requirements.

Our structured approach and rigorous GMP reviews and Gap analysis will serve to align your facility documentation and processes with EU GMP regulations and guidelines prior to the arrival of the auditors.

Furthermore, our European-based third-party EU GMP pre-inspection auditor will provide a thorough assessment of the facility's readiness prior to inviting the EU regulators for the audit.

Contact us for a right-first-time solution to your EU GMP needs.

**EXCEEDING  
EXPECTATIONS BY  
MEETING ALL  
INTERNATIONAL STANDARDS**





## SERVICE & MAINTENANCE

To ensure customer satisfaction around the globe, we employ over 150 highly qualified and committed service engineers who provide service and maintenance for your investment.

Our local customer care managers are always at your disposal to upgrade and recondition your existing facilities while maintaining contracts and facility management.

### Your benefits

- Guaranteed fast response times to take care of your immediate needs
- Consulting on long-term maintenance & training needs
- Fast import handling of spare parts at affordable prices



**WE NOT ONLY  
PROVIDE QUALITY  
WE ALSO MAINTAIN IT**



**WE BRING YOUR PLANT  
ON LINE, ON TIME AND  
ON BUDGET**

## YOUR BENEFITS

Successful project management is the key to completing your projects on time and within budget, every time.

We guarantee this by offering an ideal mix of international and regional specialists with up-to-date relevant experience and expertise. This combined team expertise ensures seamless interfaces between all project aspects and results in the future successful operation of your plant.



### A full-service approach

Take advantage of our wide service portfolio that covers the whole lifecycle of industrial projects, including consulting, engineering, contracting, the sourcing of machinery and equipment, shipping, installation, after sales services and consumables supply.



### Globally at home

Find your personal Rieckermann contact just around the corner from you. We speak your language and understand local regulatory requirements as well as cultural differences. That allows your dedicated contact person to source the relevant expertise from our vast network of partners.



### One strong partner

Benefit from professional consultation and efficient project management from a one-stop, turn-key service. We act as an interface between client and manufacturer, selecting one or more highly qualified suppliers and/or partners to provide you with the desired equipment and services. A designated contact person will assist you and focus on your interests throughout the whole project.



### Getting it right first time

Regardless of whether you require a single machine or a complete solution – profit from the added value of our long standing experience, expertise in diversified industries, competence in consultancy and professional project management skills.



## GLOBALLY AT HOME



Your local Rieckermann office is right around the corner from you. Our local team is ready to find the best solution for your business.

We look forward to hearing from you and meeting you in person. Please find all addresses and contact information for local offices on our website: [www.rieckermann.com](http://www.rieckermann.com)

**750** EMPLOYEES  
**24** OFFICES  
**17** COUNTRIES

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