

CHEMICAL & ENERGY SOLUTIONS

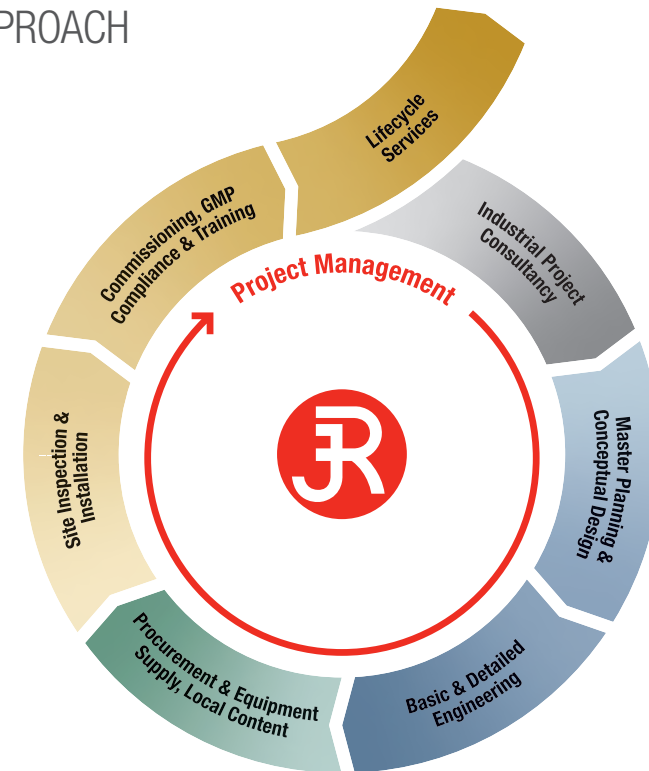
360° CUSTOMIZED INDUSTRIAL SOLUTIONS

Since 1892, Rieckermann has been your reliable partner for industrial production and processes. With a comprehensive range of high-quality services and technology, we provide solutions tailored to match your individual needs.

As a family-owned company, we personally accompany, guide, and support you on your path to drive your business to the next level. With over 130 years of experience and specific expertise in several industries and markets, we open new opportunities for you and your industrial production.

Our team of 750 employees is present in person in the Near and Middle East, Southeast Asia, and the Far East. To fulfil your expectations, we work close to the market and hand-in-hand with you on a local level.

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

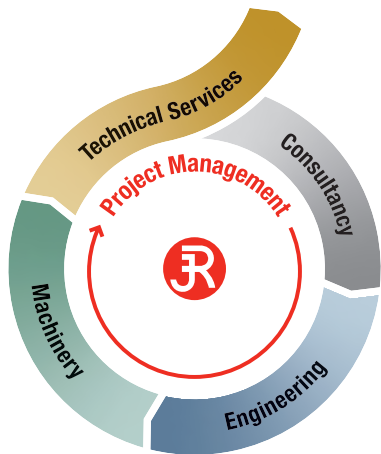
- Integrated planning & consulting
- Global trade finance
- Full scope expertise & interface handling
- Experience with local conditions & international standards
- Life long service & support



WE CARE ABOUT YOUR SUCCESS

Rieckermann acts as a full-service solution provider along the whole value chain of industrial production and processes.

You can select and combine services according to your individual needs.



ENGINEERING

Rieckermann offers complete engineering solutions, from the concept to the last detail, with specific, predefined, and measurable deliverables.

Our engineering team specializes in strategic, technical, and quality management consultancy as well as new facility design according to PIC/S GMP, EU, USFDA, and local GMP standards. They also provide project and construction management, commissioning, as well as qualification and validation (EPCmV) services.

We are committed to high-quality results for our customers in accordance with international standards.

Thanks to our professional skills in planning and engineering we help you improve your performance and grow your business.

Rieckermann consulting & engineering solutions

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



MACHINERY

We source and supply single machines, process lines, and integrated systems tailored to meet your individual requirements.

Our complete solutions ensure reliable and cost-effective production processes, meeting high standards of performance and fulfilling the most stringent requirements for quality and reliability.

Benefit from our long-standing industry experience and gain access to our established network of international partners and suppliers. Additionally, our unique global trade finance services help you realize your various industrial projects around the world.

Focusing on your specific needs, we deliver the best solution for your project.

Rieckermann process technology

- Consulting & conception
- Licensing
- Machinery & industrial equipment supply
- Contracting
- Global trade finance
- Consumables & raw materials



TECHNICAL SERVICES

Quality maintenance is part of Rieckermann's customer care management that keeps your machines up and running with a minimum of downtime.

We handle a wide range of services, from site preparation, installation, and commissioning to start-ups, repairs, replacement parts, retrofitting, and relocation.

Thanks to our experience and our longstanding relationships with machinery suppliers, we are able to provide you with first-class technical services to extend the life cycle of your machines.

We are dedicated to keeping your machines running in top condition to reduce your costs and increase your competitiveness.

Rieckermann technical services

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

INDUSTRY EXPERTISE WE UNDERSTAND YOUR BUSINESS

We are constantly developing our expertise. Today, we operate in a wide range of industries, providing services and technology for industrial production and processes along the whole value chain.

Thanks to our in-depth knowledge as well as our personal experience in specific industries, our team of experts can understand your needs and deliver customized solutions to make the most of your business.



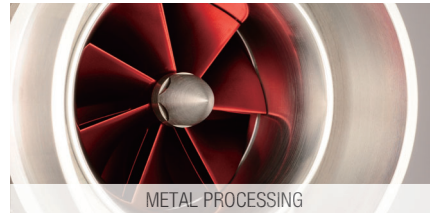
PHARMA



FOOD PROCESSING



PACKAGING MATERIAL SOLUTIONS



METAL PROCESSING



CHEMICAL & ENERGY



CONSTRUCTION & INFRASTRUCTURE



SPECIAL TECHNOLOGIES

YOUR BENEFITS AT A GLANCE

Successful project management is the key to completing your projects on time and within budget. We make this happen 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.



One strong partner

Benefit from professional consultation and project management from a one-stop, turn-key service. We act as an interface between client and manufacturer, selecting 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, customized to your needs.



Full-service approach

Take advantage of our wide service portfolio including consulting, engineering, machinery & equipment sourcing, financing, shipping, project management, installation, after sales services, and spare parts supply. Whether you need a single machine or a complete solution, we support you throughout the lifecycle of your industrial project.



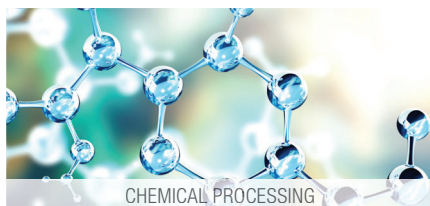
Globally at home

Your personal Rieckermann contact speaks your language, understands local regulatory requirements, and is knowledgeable about cultural differences. With our long-standing local presence, you can trust our dedicated team to source relevant expertise from our vast network of specialists and partners within diversified industries.

CHEMICAL & ENERGY SOLUTIONS

Rieckermann supports the Chemical & Energy industry across Asia and the Middle East by providing process solutions with a focus on chemical production, gas processing, waste to energy concepts, and innovative green technologies. We have built a first-rate reputation in the process industry as a reliable and competent partner with a long and successful track record.

Our know-how and experience are reflected in an industry portfolio with a wide range of proprietary technologies, including commercial licensing, engineering, consulting, the supply of process plants, and critical equipment. Together with our expert technology partners, we supply state-of-the-art solutions that are tailored to individual requirements.



CHEMICAL PROCESSING



OLEOCHEMICALS



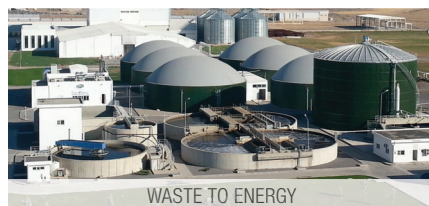
GREEN CHEMICALS



FERTILIZER



WASTE PROCESSING



WASTE TO ENERGY



SMALL-SCALE LNG LIQUEFACTION



GAS PROCESSING



CHEMICAL PROCESSING

We support the chemical industry, optimizing their production processes for enhanced profitability, compliance with evolving regulations, and competitive positioning in challenging market environments.

Rieckermann provides commercial licensing and supplies dedicated process plants for a wide range of industrial applications. Leveraging our extensive industry experience and highly skilled local technical service teams, we are committed to unlocking the full potential of our customers' businesses in this sector.

Applications

- Ammonia
- Methanol
- Epichlorohydrin (ECH)
- Epoxy resins
- Polyols
- Polycarbonate

Process equipment & systems

- Reciprocating compressors for process gas
- Multi-vapor recompression plants
- Gas & liquid incineration & heat recovery
- Brine purification plants
- Heat recovery systems (heat pumps)
- CO₂ valorization

OLEOCHEMICALS

We assist enterprises with access to glycerin and fatty acids, such as palm oil plantation owners or investors in the field, to create more valuable products.

Rieckermann consults on plant design, process technology selection, as well as compliance and certification requirements for different product-market strategies. Our international experts and local service teams help to reduce energy consumption, CO₂ footprint, and waste output at maximized profitability – all with an early return on investment.

Recently, we expanded our services for biodiesel producers: we can now also offer retrofit options for existing biodiesel plants if a completely new facility is not planned. This can increase flexibility in feedstock, lower the costs for the processing of by-products, and improve the quality of fuel as well as resulting glycerin.

Production applications

- Glycerin (high purity)
- Fatty acid derivatives
 - Fatty acid ethoxylates
 - Fatty alcohol ethoxylates
 - Fatty acid amines
- Epichlorohydrin (ECH)
- Epoxy resins
- Biofuels
 - Biodiesel - MultiFeedstock & RepCAT
 - Pretreatment for waste oils
 - SAF / HVO
- Bioplasticizer

Process technologies

- Purification equipment
- Thin film evaporators
- Separation equipment
- Drying equipment
- Ethoxylation plants
- Hydrogenation plants
- Industrial heat pumps
- Esterification plants
- Biodiesel plants
- & more



WASTE TO VALUE

We help our customers reduce their emissions and turn their waste into value to keep up not only with evolving regulations, but also with increasing competition and shifting market trends. No matter which mix of gas, liquid, or solid waste streams result from the individual processes, Rieckermann helps you process it effectively by providing comprehensive consultation, engineering, technology, and value-added services to elevate production to the required standard and above, differentiating your process from the competition, and ensuring long-term profitable operations.

We further assist investors or enterprises interested in opportunities to capitalize on waste streams of third parties, such as municipalities, with our expertise and vast professional network across Europe, Asia, and the Middle East.

Applications

- Chemical recycling of plastic: plastic to pyrolysis oil
- Tire recycling: end-of-life tires to pyrolysis oil
- Waste sorting & purification
- Wastewater treatment
- Biofuels
 - Biodiesel - MultiFeedstock & RepCAT
 - Pretreatment for waste oils
 - SAF / HVO
- Brine treatment
- Incineration of solid, gas & liquid incl. heat recovery

Technologies

- Pyrolysis unit
- Waste processing technologies
- Aerobic & anaerobic systems
- Desalination unit
- Evaporator
- Burner skids & dosing systems





GREEN CHEMICALS

Rieckermann empowers established chemical companies to realize the full potential of the latest technological innovations and produce chemical intermediates high in demand from renewable feedstocks. In addition, we support investors in diversifying their production portfolios towards renewable fuels and green energies.

Building on our expertise in optimizing industrial processes through machinery, local engineering, and technical services, we are committed to shaping the global transition from fossil fuel-based production to renewable resource utilization. Therefore, we constantly work on expanding our portfolio of products and services in this area.

Current applications:

- Green methanol
- Green ammonia

Core technologies:

- Thin film evaporators
- Reciprocating gas compressors
- Air separation (ASUs)



WASTE TO ENERGY

Rieckermann enables processing companies from various industries, like food processing and the packaging industry, to unlock the untapped potential of their waste streams and recycled products. We consult on individual waste to energy concepts and provide equipment, engineering, and technical services.

We also realize complete process plants, enabling our customers to generate energy, heat, green gases, and fuels, besides process utilities like steam and fresh water. This results in the benefit of increased independence, reclaimed property space, and additional income sources including the possibility of acting as local network supplier in the surrounding area.

Applications

- Biogas & biomethane
- Bio LNG
- Biofuels
 - Biodiesel - MultiFeedstock & RepCAT
 - Pretreatment for waste oils
 - SAF / HVO

Process plants & equipment

- Biogas reactors
- Waste heat recovery
- Combined heat & power units (CHP)
- Biogas upgrading to natural gas
- Biodiesel plants
- Advanced pretreatment technologies
- Multi-vapor recompression plants



FERTILIZER

We support ammonia producers and investors active in the fertilizer industry to improve their production facilities and capitalize on market opportunities. How to meet the rising demand for ammonia while concurrently reducing CO₂ emissions is one of the key questions in this area. Rieckermann stands out as a trusted partner in navigating these challenges effectively.

Whether the objective is to enhance production efficiency, increase capacity, or transitioning towards renewable energy utilization, we offer consultation, cutting edge process technology, licensing and lifelong services, empowering our customer's businesses to thrive in a competitive market landscape.

Production applications

- Ammonia incl. green & blue ammonia
- Urea
- NPK as well as DAP, NP, TSP, SSP & USP
- Nitrates & nitric acid
- Melamine
- N₂, O₂ & Ar

Process technologies

- Urea reactors: Hemihead & lining
- High pressure equipment
- CO₂ recovery & purification
- Air separation (ASUs)
- Gas compression
- Sulfuric acid recovery (SAR)



GAS PROCESSING

Rieckermann provides cost effective, safe, and reliable gas generation, handling, and storage solutions. Our customized compressor systems are used across upstream and downstream applications, ranging from chemical processing and the oleochemical industry to refineries and other industrial gas sectors.

We have been working together with our customers in this field for decades supporting them with tailored technology solutions, value added services, and complete treatment plants. In face of the global transition towards sustainability, the importance of CO₂ recovery, storage, and valorization is rising.

Aligned with the evolving demands of a greener future, Rieckermann also supports the food and agricultural industry with biogas handling solutions.

Production applications

- Hydrogen production & purification
- CO₂ recovery & purification
- CO₂ capture, utilization & storage (CCUS)
- CO₂ valorization
- Bio-LNG & biomethane
- Bio-CNG
- Nitrogen & oxygen production by air separation (ASUs)
- Sulfuric acid recovery (SAR)

Process technology:

- Gas recovery
- Gas drying
- Gas purification
- Reciprocating gas compression for
 - LNG (boil-off-gas)
 - Ethylene
 - Propylene
 - LPG (propane & butane)
 - Hydrogen
 - Nitrogen
 - CO₂
 - Ammonia
 - Biomethane
 - Vapor recovery systems (VRU)
 - & all application processes mentioned earlier

SMALL-SCALE LNG LIQUEFACTION

We support gas well owners and investors in liquefaction plants to capitalize on lucrative investment opportunities with exceptional returns. Rieckermann offers a complete virtual pipeline concept, where liquefied natural gas (LNG) is transported on trucks at -160°C from gas wells directly to end users, who benefit from cleaner energy at attractive costs, even in most remote locations.

Rieckermann's scope of services includes master planning and conceptual design throughout the entire project lifecycle. Our technologies for the efficient liquefaction, handling, storage, and transportation of LNG contribute to replacing conventional fuels and progressing towards a sustainable transformation.

Production applications

- LNG
- LPGs & condensates

Process technologies

- Natural gas pre-treatment
- Small-scale LNG liquefaction
- Gas compression
- Nitrogen plants
- Gas engines
- LNG storage tanks
- Truck loading facilities

Your benefits

- Proven way to monetize unutilized assets
- One partner for the complete value chain
- Shorter project execution thanks to pre-engineered technology
- Highest safety standards
- Carbon footprint reduction
- Compliance with stricter environmental regulations
- Substitution of expensive fuels linked to global market prices
- Higher energy independence



RIECKERMANN

TECHNICAL SERVICES



Our qualified service engineers are always at your service.

At Rieckermann, our team of 150 trained and certified local field service engineers focus on your production excellence, providing long-term services and certified original spare parts.

Our close partnerships with our technology suppliers ensure that our team and your operators are always up-to-date keeping your machines up and running.

Our service engineers speak your language and know your local conditions well. They make sure your processing equipment is operating correctly and safely. Further, they support you with local content management, and ensure effective training of your machine operators and maintenance personnel on site.

Pre-installation services

- Site inspection
- Site preparation
- Site readiness, foundation, and consignment checks

Installation services

- Unloading & positioning
- Mechanical installation
- Electrical installation

Commissioning & training

- Installation verification
- Start-up
- Qualification (IQ/OQ)
- Instrument calibration
- Testing (functional & safety)
- Site acceptance test (SAT)
- Process & operator training
- Production assistance

Lifecycle services

- Spare parts & consumables supply
- Re-calibration service (of instruments)
- Service contracts
- Inspection/audit
- Preventive maintenance
- Corrective maintenance (remote/on-site)
- Overhauls

Life extension services

- Diagnosis/monitoring
- Operator skill development
- Modification/modernization
- Optimization/upgrades/retrofits
- Relocation

End of life services

- Dismantling
- Disposal

**YOUR FIRST CHOICE
INDUSTRIAL SOLUTION
PROVIDER**



750 EMPLOYEES
24 OFFICES
17 COUNTRIES

CONTACT

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!

For further information and up-to-date contact information please visit our website:

www.riekermann.com

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