gefeba finds solutions
The company

gefeba – which has more than 45 years of electrical know-how. The global high-tech company opts for technical excellence, highest quality and absolute reliability.

gefeba located in the heart of the Ruhr region provides turnkey automation and electrical equipment from a single source. For more than 45 years, the medium-sized business has grown steadily and has a know-how that has been developed from the experience of 170 employees, of which 85 are engineers and technicians – as well as from numerous reference projects.

No matter if you are replanning a system or a process as a customer or would like the conversion and modernization of automation within a current company:

Our specialized team

• analyse the sequence of events.
• clarifies interfaces.
• using 30 CAD/CAE workstations develops the hardware solution.
• develops the application software up to level 2-applications.

• in our own simulation center, we simulate the entire automation process.
• produces in our own CNC based workshops.
• installs and mounts the electrical installations.
• puts into operation and optimizes.

Flat hierarchies make it possible for the system suppliers to design, produce and install all at the same time – also due to high levels of experience from several generations of development in automation and drive technology.
Performance spectrum

You have the requirements, gefeba offers tailor-made system technology for your business. This is guaranteed by highly qualified and motivated employees who act with the utmost of care and comprehensive expertise.

For the implementation of your task we are careful of the following factors:

- maximum functionality
- highest availability
- safety
- punctuality
- economic efficiency
- long service life
- flexibility

Starting with a process analysis, automation professionals develop an electrical solution step by step, which is optimally adapted to the needs of the customer. For this there are 30 CAD/CAE workstations available, besides our own simulation center for the complete simulation of the entire process, as well as CNC-supported workshops. From conception through production to the installation: gefeba serves all needs from a single source – quickly, flexibly and in the best quality.

Our services at a glance:

- Consulting (Basic Engineering)
- Project management
- Hardware development CAD/CAE
- Software Engineering
- Visualization and process control engineering
- Complex drive technology
- Safety technology
- Level 2-applications
- Retrofit/revamping
- Manufacturing and installation
- Worldwide commissioning
- Maintenance and service
- Training
Our strengths

Cross-generation knowledge has left valuable traces: gefeba has a wealth of experience in the area of electrical engineering, which opens up many possibilities for the customers.

Control technology and automation
From design through programming to the complete solution, everything is possible with us:

- Process Control Systems
  - PCS7, Delta V, Freelance AC800F
- HMI/SCADA systems
  - WinCC, InTouch
- PLC systems of all sizes
  - S5, S7, Quantum, Allen Bradley, HPCi, AC800
- Migration S5 ➔ S7, Teleperm M ➔ PCS7
- Communication networks
  - TCP/IP, H1, ISO, UDP, Modbus on TCP etc.
- Field bus systems
  - PROFIBUS, PROFINET, Foundation Fieldbus, DeviceNet etc.
- Process engineering control systems
- Weighing and dosing technology
- Fail-safe and high-availability systems

Instrumentation and process control engineering
gefeba develops absolutely reliable measuring and control technology:

- Sensors and actuators
- Measuring point listing
- Measuring point loops

Switch gear
Our hardware planning and design, as well as our own production at the Gladbeck site ensures maximum efficiency. For this we offer you:

- the creation of the E documentation with the latest CAE programs.
- standard circuits and manufacturing of special solutions.
- a CNC manufacturing machine.
- LV-switchgears with proof of construction according to IEC 61439-1 and 2 to 4000 A.
IT and level 2
Our customers benefit from optimal and comprehensive solutions in the following areas:

- Quality data recording
- Modelling and material tracking
- Recipe and batch processing
- Database systems such as Oracle and SQL Server
- Production planning
- Integration of ERP systems
- Web applications
- Visual Studio as integrated development environment
- Storage, historian
- Telegram Manager 5, our proprietary software for the telegram-based data exchange of heterogeneous systems

Drive technology
Your problem formulation, our solutions.

- Servo technology
- Frequency converter
- Power converter
- Soft starter
- Individual drives as well as coupled Multi-motor drive
- Technological controls
- Drive sizing and design
- Digital control systems

Assembly and service
Our long-standing and highly qualified employees allow a perfect service. They plan and perform installations quickly and reliably, take over the supervision and routinely monitor each step of the process. Then comes the commissioning of the system, this includes training courses and training of all employees. The gefeba team is available also for the necessary revisions and tests.

Safety technology
Our safety experts certified in accordance with TÜV Rheinland create for your equipment:

- Safety analysis with risk assessment
- CE documentation as per EC Machinery Directive
- Development of technical safety Implementation
- Validation of safety features
- Worksite safety plan
Our industrial branches

Steel, iron, aluminum and non-ferrous metals

All fired-up for you
gefeba as a complete provider has the ability to renew very complex systems during ongoing operation and to optimize production processes. Without loss of quality, but very structured, efficient and forward-looking.

Our application areas:
- LD steel works
- EAF steel works
- Electric arc furnaces
- Ladle furnaces
- Vacuum degassing equipment
- Alloy plants
- Inert gas plants
- Hot iron desulphurization
- Sintering plants
- Coke oven plants
- Continuous casting plants
- Dust collection plants
- Gas cleaning plants
- Boiler plants
- Blast furnace technology

Strip Plants

Wide range of services for your success
The steadily growing requirements of the strip process lines, rolling and finishing lines make modern technical solutions absolutely necessary. We combine hardware and software systems of the latest generation, special knowledge and experience of process and system technology with a user-oriented and flexible automation. In this way we are sure to achieve every goal.

Our specialists possess the technological know-how and deliver the required performance range of automation solutions. In addition, we can refer to numerous references, such as:
Rod and pipe production

A clear view for you

Our technical excellence, fast and flexible response, maximum reliability and optimum quality are fixed values in the pipe industry. We deliver customized, intelligent and individual automation and drive solutions for different production systems, with our electro-technical know-how to the customer requirements such as:

- Cutting benches
- DataMatrix code pipe labeling systems
- Internal and external blasting systems
- Reel systems
- Drift systems
- US systems
- Transport systems
- Cooling bed systems
- Coupling sleeve slider
- Roller path control system
- Reheating and hardening furnaces
- Peeling machines
- Recuperator
- Rotating hot saws
- External grinding machines
- Internal grinding machines
- Sizing mills
- Leveller

- Raw strip slitting lines
- Cold rolling mills
- Roller change trolley
- Slitting lines
- Cut-to-length lines
- Rewinding lines
- Inspection lines
- Stretch bend levelling lines
- Precision traversing spooler
- Leveller
- Coil transport systems
- Coil packaging systems
Our industrial branches

Furnace systems

Industrial furnace technology
No matter whether existing furnaces are retrofitted and modernized or built completely with new furnaces: Process control systems such as Freelance or PCS7 are used principally. This includes also the relevant couplings to parent level 2-systems, the furnace management computers and material tracking systems.

The following types of industrial furnaces are substantially revised by us or newly automated:

- Roller hearth furnace
- Conveyor furnaces (continuous annealing)
- Walking beam furnaces
- Rotary hearth furnaces
- Pusher furnaces
- Annealing hoods
- Heating fire for ladles and trays in the steel industry

When retrofitting existing furnaces, they are upgraded through the use of new and technological developments to the latest technology. With this the safety standards are upgraded and the appropriate industry standards such as EN746 are reached. The gas input plugs for natural gas, coke oven gas, converter gas, CO gas and inert gas are equipped with fail-safe control systems or manufacturer-certified components (density control systems).

By the retrofitting of modern burner systems such as regenerative burners, self recuperative burners and FLOX burners the exhaust and energy efficiency has improved considerably. Oven management computer and material tracking systems are – if not available – retrofitted by us.
Transport and handling (bulk materials)

We move for you
Modern plants place high demands on the reliability and availability of machinery and equipment. This ensures among other things modern material flow systems. gefeba creates by means of individual automation technology – also data handling and material tracking include – solutions for the extraction and transportation of bulk materials.

In addition, gefeba offers technologies for longitudinal and circular bearings, ship loaders, conveyor belts and combined bucket-wheel devices.

We revise the following machines on request fundamentally and re-automate them:

- Portal scraper
- Semi portal scraper
- Bridge scraper
- Stacker
- Combined Stacker Reclaimer
- Slewing stackers
- Rotary scraper
- Combination devices for simultaneous stock-piling and reclaiming
- Ship loaders
- Conveyor belt systems
- Combined bucket-wheel excavators with traveling hopper

Radar sensors and state-of-the-art GPS sensors are used for the realization of fully automatic driving incl. collision protection. A consistent material tracking, as well as an on-line pithead stock model complement our portfolio.
Our industrial branches

Process control systems for chemical plants

We offer project experience: From planning right up to the start of production all comes from a single source.

Basic Engineering:
- Batch concept as per ISA-S88 in collaboration with the plant operators
- Automation concepts for continuous systems
- Preparation of necessary documents for implementation (functional specification)
- Migration concepts for the replacement of existing automation systems by Siemens PCS7, Emerson DeltaV, and ABB Freelance
- Creating Typicals of single control functions, EQM, basic functions (phases), as well as the corresponding graphic elements (dynamos, faceplates)

PLT Engineering of the following plant types:
- Batch systems of varying degrees of complexity for example production of diverse plastics
- Automation of continuous processes, e.g. chlorine electrolysis, plastic manufacturing
- Design and commissioning of the common field bus systems, Modbus, PROFINET-DO, PROFINET-PA, Foundation Fieldbus
- Extension of existing PLT plants

Construction of the entire PLT equipment for the customer:
- Control cabinet construction in compliance with the ATEX regulations
- FAT – optional by means of system simulation
- Electrical installation including field devices
- SAT, Loopcheck, commissioning
- Creation of As-Built-Documentation
- Upon request, local support for the ongoing plant

Modularization of PLT facilities:
- PLT container (ex zone 20) including the energy supply of the system modules
Safety technology

Used worldwide and obligatory in Europe: Safe machines
The safety of people and the environment must be guaranteed – this is obligatory in Europe for machine manufacturers and operators, they are committed to the general requirements of the functional safety of machinery in the Machinery Directive 2006/42/EC.

Only when these requirements are met, is a machine considered safe.

Our experience for your safety
On the way to a safe machine, we offer you every necessary step, no matter whether it is a new system, modernization or change measure:

1. Risk assessment (according to EN ISO 12100)
2. Create safety concept
3. Create safety design (according to EN ISO 13849 and IEC 62061)
4. Select components
5. System integration
6. CE documentation

We can refer to numerous reference projects in which we have run one or all steps of the safety technology.
Here are some examples of our risk analysis and CE documentation:

- Band Saws
- Pipe testing presses
- Internal grinding machines
- Pilgrim frames
- Bar peeling machines
- Pipe transportation
- Cooling beds
- Phosphating plants
- Ultrasonic testing equipment
- Hot iron saws
- Longitudinal slitting systems
- Rotary piercing mills
- Cross transfer table
Our industrial branches

Water management

gefeba can look back on their more than 45-year history on numerous reference projects in the field of water management. Benefit from the diverse experiences, which our team could collect by working with the following equipment and techniques:

Water extraction
- Wells
- Pumping stations
  - Diesel pump controllers
  - FU-operated pump controllers
- EMSR systems for plant operation
- Control technology
- Overhang water pumping station
- Ozonization plants
- Hydroelectric installations with MS synchronous generators
- Automatic raking equipment
- Emergency disinfection systems
- Flocculation plants

Industrial water management
- Pumping plants
- Cooling towers
- Filtration and purification stages
- Sintered wells
- EMSR systems for plant operation
- Control technology

Sewage treatment plants
(Urban Water Management)
- Inlet/outlet buildings
- Pumping stations
- Rainwater retention basins
- EMSR systems for plant operation
- Control technology
- Sewage test plant at the RWTH Aachen University in Aachen-Soers
- Rakers, spreaders, phosphate precipitation systems etc.
Simulation center

To ensure an absolutely smooth and error-free operation of a process control system right from the start, gefeba analyses the fully developed automation technology prior to its actual use in their own simulation center. To do this the technicians couple PC-based simulation tools to the automation and control systems in order to provide them with original process data. Circuits, interlocks, regulators and protection functions can thus be optimally tested without the mechanical system components being loaded. In the course of the simulation process gefeba uses this to train the operators to work with the new system. All this takes place in a separate hall for test teams with up to 20 people. Fully equipped with SIMIT PCs, extensive multimedia equipment and AC/DC motors a successful test run can easily be performed.

To do this gefeba creates simulation software that mimics the behavior of the actuators (valves, motors, actuators, etc.) and the response of the sensory quality. Complex relationships are simulated by mathematical modeling or non-linear behavior such as polygonal courses. The control and visualisation are tested for functionality and completeness on the real control system.

In times of increasingly shorter reconstruction times this is an unbeatable advantage.
Quality

This satisfaction is high – also because the Gladbecker company often looks back on a long collaboration that often begins with training. Every year the IHK certified apprenticing company educates professionals in the following areas:

- Technical System Planning of Electrical Engineering
- Computer Science/Application Development
- Computer Science/System Integration
- Electrical Engineering for Industrial Technology
- Construction Mechanics of Thin Sheet Construction
Partnerships

gefeba focuses on high quality and absolute reliability. In order to fulfill this principle in the future, the system supplier has cooperated with renowned partners.

iba AG – with the iba AG as a specialist for measurement and automation systems, gefeba could expand the competence in the field of steel and metal industry significantly. The cooperation partner has established itself as the global leader in systems for process and quality data recording.

Rittal GmbH & Co. KG – Rittal’s leading system suppliers for enclosures, power distribution, climate control, IT infrastructure, software and services worldwide. Its broad product range also includes complete solutions for modular and energy efficient data centers. The leading software providers Eplan and the software manufacturer Mind8 supplement the Rittal system solutions by interdisciplinary engineering solutions and ensures that the company is a strong partner.

Siemens AG – gefeba is part of the Solution Partner Program of Siemens AG and thus also part of a network of comprehensive application and system expertise and with proven project experience. Siemens has extensive experience in the field of automation and drive technology and brings a correspondingly high standard of quality with it. Thus gefeba customers benefit from this.