



Electrical engineering from RST

Over forty years' capability in designing & building switching systems, automation solutions, software development and visualisation systems


RST – Electrical engineering for over 40 years

Since 1965, RST has been manufacturing switchgear and automation solutions for industrial applications. Its customers include leading European enterprises in the fields of mechanical engineering, plant construction, the chemicals industry, textiles industry, the automotive industry and its OEM suppliers.

Many customers that discovered our capabilities early on in our history are still loyal, satisfied partners.

In our state-of-the-art production facility, which extends over 11,000 m² and is equipped with the latest machine tools, we manufacture PLC controlled automation systems, control and switching systems for low-voltage applications, customer-specific special-purpose controllers and vehicle control systems - from the prototype stage up to mass production.

The systems developed and built by us are used worldwide as either stand-alone units or as part of integrated systems.



*RST's electrical engineers
testing the control software
for a drive system*

Engineering and what it means to us

What is important to our customers? RST's customers place their trust in us not just because of our peak quality and on-time deliveries, but also because of our efficient solutions to their needs. In our eyes, "engineering" means comprehensive attention to each customer's technical requirements, beginning with an analysis of the subject matter and continuing with proposals based on that starting point, project planning and manufacturing through to final compilation of the documentation and software.

Independently of component manufacturers and software companies, RST is in a position to select the ideal combination of products to meet the specific needs of the application. RST stands for flexibility, know-how and reliability and all our work is firmly based on the standards and regulations relating, in particular, to the manufacture and inspection of switchgear and associated systems.

Machines and equipment can be built to our designs or to customers' specifications. Such regulations as VDE, IEC, UL, CSA and customer specifications, which are frequently in place in e.g. the chemicals, steelworking and automotive industries, are taken

into account. From the task outlined to RST, we develop a solution which is specifically tailored to the application and optimised to achieve the required results. The project planning parameters are defined together with customers. The result is plant-specific documentation which is supplemented, where necessary, with Operating & Maintenance Instructions drafted by technical writers.

As a rule, RST will take on the entire design process for the control units, acquisition of all the components and the assembly work. In this way, the customer only has one person to contact, his overall costs are reduced and he is provided with a full-featured, ready-to-run product.

By means of continuous training programmes and instruction courses, our employees are kept up-to-date on the latest developments in hardware and software solutions and can apply these new skills to their projects.

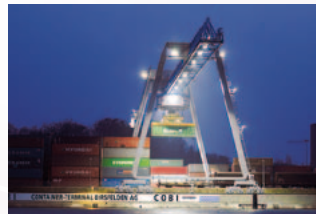
In our documentation department, our designers work at 13 CAD workstations (AUCOPLAN, COMOS PT, ePlan, SolidWorks, AutoCAD) to develop documentation in line with the appropriate regulations, such as DIN, ANSI, BS or to customers' own specifications.



Across Europe, mobile harbour cranes load & unload bulky cargoes with the help of control engineering from RST



Special-purpose control systems for workshop cranes – control engineering and sheet metalworking from a single source



Wide span gantry (WSG) – another application for control systems made by RST



Fully automated operation with control engineering from RST: automated guided vehicles. These driverless container transfer vehicles, equipped with diesel hydraulic or diesel electric drives (AGVs and E-AGVs respectively) are responsible for the automated transfer of 20', 40' and 45' containers in the terminal. Another ideal combination of RST control engineering and RST sheet metalworking.

Hardware and software for automation solutions

We provide capability coupled with experience for the scheduling, project planning and implementation of complete, complex automation solutions.

RST produces turnkey systems for automating machines and installations on the basis of PLC controllers and systems for visualisation, control & monitoring. As an independent provider of complete systems, RST can agree with each customer on the most suitable manufacturer of the automation system to be used, the software for the visualisation system and the optimum hardware for the application. Programming follows recognised quality standards and is subject to strict quality assurance procedures.

For the programming of the PLC, RST uses not only LD ladder diagrams, FBD function block diagrams, IL instruction lists, CFC continuous function charts and SFC sequential function charts, but also higher programming languages in accordance with IEC 61131-3 ST structured text (e.g. SCL). The control & monitoring functions and machine visualisation are implemented using standard software tools available on the

market. To enable key functions to be implemented cost effectively, we store templates for typical automation elements that we can then implement quickly and adapt to suit the specific needs of the project.

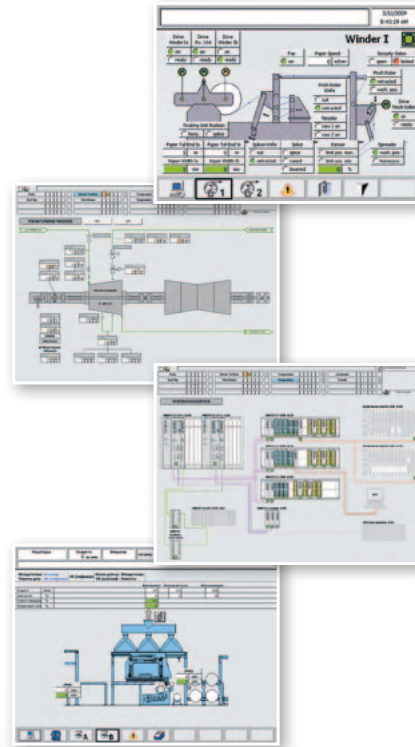
Process control systems SIEMENS: SIMATIC PCS7

PLC engineering software
SIEMENS: SIMATIC S5, S7
ROCKWELL (Allen Bradley):
PLC5, RSLogix 5000
B&R: PG2000, Automation Studio

Process visualisation
SIEMENS: ProTool, WinCC
ROCKWELL (Allen Bradley):
PanelMate, PanelView, RSVIEW
WONDERWARE: InTouch
B&R: Automation Studio

**Industrial networks
Bus systems**
Ethernet, Modbus, Profibus,
Profinet, CANBus, ASi-Bus,
ControlNet, DeviceNet, RIO

Drive technology
SIEMENS: Sinamics,
Masterdrives, Micromaster



Machine level control & monitoring for efficient machine operation and monitoring. Available as a touch panel (TP) or as an operator panel (OP) with the classic keypad and mouse connection. Tailored to suit every individual application.



Control and visualisation system for two gas turbines running a generator with one downstream waste-heat boiler for each gas turbine



RST software engineer performing final acceptance of the visualisation software for a gas turbine



Gas turbine skid, assembled and wired ready for operation, is prepared for transport



Compressors and gas turbines are used on oilrigs for recompressing the gases accompanying natural gas

Planning and production

Handling of customer enquiries for our tailor-made products is organised in a customer-friendly, uncomplicated way - from the first enquiry to through to the finished product. Many years' experience, state-of-the-art production technologies and an in-house test facility with function testing and simulation are our guarantee that all our controllers are made to the highest standards. Switch cabinets are completely installed in our own production facilities on the basis of detailed circuit drawings generated in-house. We can also manufacture to customers' specifications, while adherence to international and customer-specific standards is felt by RST to be essential. Only specified, tested components are used. Before delivery to the customer, control systems are subjected to comprehensive function tests and the conditions anticipated at the place of application are simulated by means of actors and sensors connected to the controller. These tests are the guarantee for no-delay factory acceptance testing and on-time installation and commissioning at the end customer's facility.

Unit control panel (UCP) and local control panel (LP, explosion-proof) for controlling and monitoring a compressor installation. The process control system is a high-availability, failure-resistant PCS7 station.

Installation and commissioning

Highly qualified installation and commissioning personnel provide efficient support for our customers worldwide. Interdisciplinary understanding of production processes and mechanical & electrical interactions guarantee targeted, cost-effective implementation.

Offshore competence: RST staff have faced considerable challenges and have qualified for offshore installation and commissioning by taking part in the following training courses:

- Safety & emergency course; Offshore Safety Introduction and Emergency Response
- Offshore Safety Induction & Emergency Training (both OLF, NOGEPa and OPITO)

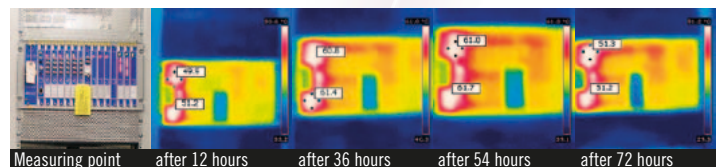
Service and support

Once a project has been brought to a successful conclusion, we continue to provide capable support: whether in the shape of maintenance, troubleshooting, spare parts procurement or retrofitting equipment and control systems – RST is always available as your contact and partner.

In addition to the detailed operating and maintenance manuals, drawn up as required by our skilled technical writers, we are pleased to offer in-depth training and instruction courses.



Since we have our own sheet metalwork facility and paintshop, we have the decisive advantage of being able to make special-purpose housings from steel, stainless steel or aluminium within the shortest time



Thermal imaging inspections are carried out on switchgear in connection with heat-soak tests during switch cabinet acceptance or as stand-alone services provided by RST



RST electrical engineering – references and services

References

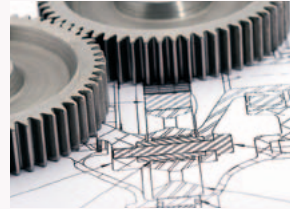
- Mechanical and plant engineering
- Metalworking industry
- Chemicals and pharmaceuticals
- Nuclear reactor industry
- Textiles industry
- Cellulose and paper
- Plastics industry
- Transport and handling
- Automotive and OEM suppliers
- Test bench control systems

Our services at a glance



Consulting

RST is able to advise customers due to its experience of numerous industrial sectors and irrespective of the product.



Engineering

Using state-of-the-art engineering tools, our engineers will develop the ideal solution for any problem.



Production

RST manufactures the installations ordered by the customer itself at its German facility.



Hardware & software

Capability and experience are key factors in the implementation of complete, complex automation solutions.



Assembly

Our fitters and commissioning engineers are always prepared to visit the customer, worldwide.



Service & support

Once a project has been brought to a successful conclusion, we are still there to assist.

Plant engineering

- ▶ Cleaning systems
- ▶ Water treatment systems
- ▶ High-pressure water-jet technology
- ▶ Robotics
- ▶ System integration

Electrical engineering

- ▶ Automation
- ▶ Drive technology
- ▶ Software engineering
- ▶ Process visualisation
- ▶ Switchgear manufacturing

Sheet-metal working

- ▶ Sound-absorbing hoods
- ▶ Machine covers
- ▶ Containers and tanks
- ▶ Control desks
- ▶ Housings

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Enterprise certified to Section 19 I WHG

WATER RESOURCES LAW: RST is certified to Section 19 I WHG (Water Resources Law) by the German TÜV testing authority and, with its equipment and qualifications, is thus authorised to build plant and equipment which may be used in connection with water-endangering substances. These include LAU facilities (storage, bottling and transhipment of water-endangering substances) and HBV facilities (production, treatment and use of water-endangering substances).