

Engineering
Automation
Visualisierung
optische Kontrollsysteme

L&P
Elektroautomatisations GmbH

The **L&P Elektroautomatisations GmbH** was founded in 1988 as a GbR, converted into a GmbH in 1994 and has made it its goal to build customer-oriented, individual production- / and test systems.

We are an innovative company and deal with the development, design and construction of special machines. For years we have been working very closely with well-known manufacturers of components, such as PLC controls, image processing systems, measuring systems, laser printers and robots.

Our customers know us as a competent, enthusiastic and committed partner who implements their applications professionally. We offer complete system solutions, but also integration of the above called components into running systems, as well as services.

We offer an **"all around carefree package"**, from the first customer meeting to feasibility studies and concept development, construction and production, up to user- / and plant training.

In the past, more than 15 years, we have specialized in **"End-of-Line-Testing Systems (EOLTs)"** to guarantee 100% production control together with our customers. Our EOLTs are mainly used by suppliers for the automotive industry. For years we have also been supplying more and more EOLTs for the pharmaceutical industry and control systems in the food & beverage sector.



Custom Made - in Germany



Automotive Industry

Automated systems for the automotive industry require increasingly intelligent, maximized solutions to increase performance, efficiency and quality. As a service provider, we support our customers with our know-how to implement process optimization and applications.



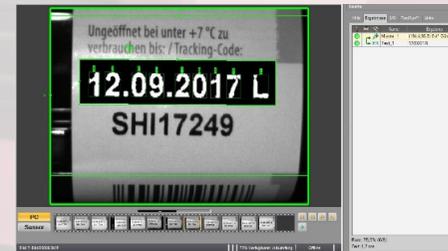
Pharmacy

In areas where human lives are at stake, we focus on quality, reliability and precision in the manufacture of our end-of-line test systems. We develop, design and manufacture our systems to the highest standards.



Food & Beverage

Transparency and traceability of the products is the main focus of automation and quality improvement in the Food & Beverage sector. With our inspection systems and data management systems we offer complete control of the production lines.



Vision processing

In the area of quality assurance with industrial image processing, we develop methods and system-technical solutions for applications, especially in the areas of quality assurance and process automation in production, robotics, automotive, food & beverage, pharmacy and safety engineering.



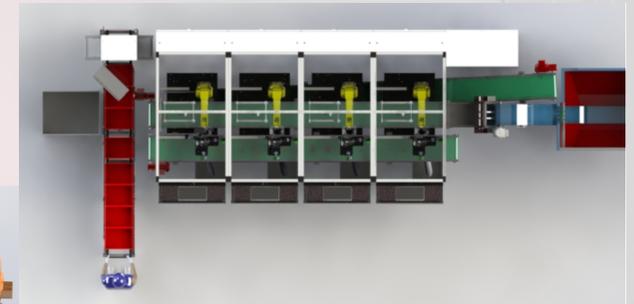
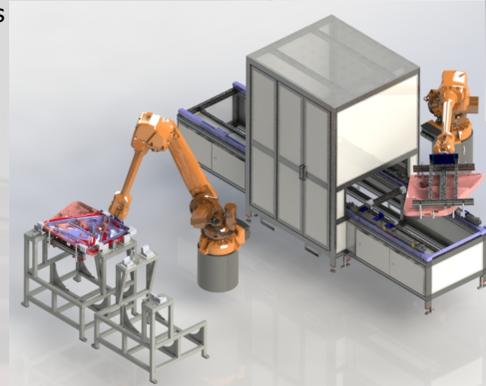
Automatisation

Automation means converting of proven manual work into semi- and fully automated processes or operating systems independently of humans. We have made it to our business to replace manual processes with time-optimized and quality-oriented automated systems. So much better we reach this goal, so much higher the degree of automation.

We are a medium-sized company with progressive thinking and present performance. The satisfaction and loyalty of our customers allows us a constant expansion of our company.

We offer complete solutions for:

- test systems and test equipment for 100% quality control
- special machines and systems for automated production lines
- system applications for material flow and logistics systems (FMS, MES, ...)
- integration of remotecontrol systems in production and testing systems
- integration of our systems with existing traceability applications
- robot applications for:
 - assembly and feeding solutions
 - joining and forming technology
 - test engineering
 - handling
- camera guided robot applications
- visualization systems
- production support



Our wealth of experience is enormous grown over the years, enabling us to offer individual system solutions for a wide range of industries.

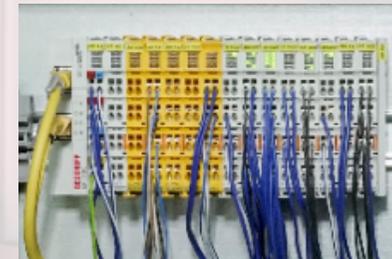
Control technology with PLC and HMI

On the basis of our different customers and application areas we use different well-known PLC control brands. These include the PLC control systems from:

- Beckhoff
- Siemens
- Panasonic
- other brands on request

Our employees are trained specialists, which enables us to offer our customers clear solution-oriented services:

- definition of the customer application or testing task
 - on the basis of a functional- / and performance specification
- preparation of a plant- / and test concept
 - detailed preparation of an offer
- project implementation incl. contact person for the complete project
 - electrical design of control systems with EPLAN P8
 - mechanical design in 2D and 3D under Solid Works
 - assembly and wiring
 - commissioning, Run&Rate at L&P
- reconstruction, commissioning and plant acceptance at the end customer in the factory
 - system training, operational support if required on site or via remote
- after sales service
 - maintenance and service work, if required on site or via remote
 - calibration or parameterization, if required on-site or via remote



Industrial vision processing

Highlights of the vision processing systems:

- ensure high production quality with high-resolution cameras (monochrome and color)
- customer-specific interface layout in relation to the applications
- recording of measured values and characteristics for each tested component, including recording
- data connection to company networks and databases
- saving of error images



Nowadays, industrial image processing has become an integral part of automated processes. Due to the high requirements on quality and production rate, inspections with vision processing systems are becoming more and more required. The vision processing systems are divided into different categories:

Small vision processing systems, also known as intelligent sensors, are increasingly being used for applications where simple inductive or capacitive sensors were used, just a few years ago.

Smart systems are vision processing systems with one chip and the complete electronics ON Board. They are installed in systems with a few product changes. The advantage here is the handling, as these systems can usually be programmed and parameterized without any tools. Small disadvantage, the cases are usually larger than single camera cases.

IPC-based vision processing systems have "frame grabber cards" with different bus systems by which several cameras can be operated. These vision processing systems have the complete programming and parameterization software installed on the system and also have the possibility to use external programs. We are therefore able to create customer-specific- / individual user solutions. With these vision processing systems a network coupling with other operating systems is possible.

We, the **L&P Elektroautomatisations GmbH**, are not bound to a specific manufacturer and can therefore select the best hardware configuration for the customer and his application.

LED lights

A process safe, vision processing system depends mostly on the right lighting. In the current development LED technology is the best choice. Not least because of its low downtime, easier handling and positive service life.

Not every LED light is suitable. Light color, design, operational safety and lifetime are important criteria, which is why we design and produce our lighting systems by ourselves. Through the years, this has resulted in standard components and special lighting systems, including production according to special customer requirements. As time goes by an extensive and still growing assortment of static and flashing LED-lightings of various designs has been developed.

Laser marking systems

Based on the ever growing demand for laser marking systems, e.g. for the marking of components that have been checked for ok, we have included these systems from various well-known manufacturers of laser marking systems in our sales program.

In recent years the marking of capital and consumer goods by means of laser markers has become more and more important and it is impossible to imagine production without them. On the one hand the high flexibility of the process is more important than ever today, as more and more parts have to be marked individually for reasons of traceability. On the other hand it has been possible to considerably improve the handling which was still difficult years ago. Last but not least, laser marking systems have also become considerably more cost-effective in recent years.

CO²Laser

are used especially for industries with particularly high demands on speed and functionality. CO² laser marking systems can mark moving objects "on-the-fly" due to the ultra-fast galvanometer scanner. In addition it is also possible for example to synchronize the marking and feeding speed, as an encoder interface is usually implemented.

Fiber Laser

called FAYb (Fiber Amplified Ytterbium) offer several advantages over other technologies. Major advantages of the fiber laser are the high beam quality of the generated laser radiation (e.g. better writing quality, engravings and tempering on metals; on plastics, foams and color changes), high efficiency of the conversion process (depending on the doping, over 85% can be achieved optically-optically), good cooling due to the large surface of the fiber, the compact and maintenance-free design and the effective manufacturing technology by using fiber-integrated components (smaller housing dimensions, a considerably longer lifetime of more than 60,000 hours and lower fixed costs, since a FAYb system has a significantly reduced power consumption and requires only simple air cooling).

In addition to the laser marking systems we also offer corresponding protective enclosures and Suction systems on.

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Services and support

As a competent partner for our customers we offer worldwide service and support for our production and testing systems (EOLT systems), if required directly on site or at short notice via remote maintenance. This includes after commissioning and handover of the systems repair and maintenance work if required.

Service work such as extensions of the parameterization of test systems or hard-/ and software extensions of the systems in case of changes of the components at the customer site in the factory or remote from the office L&P.

User-/ system training on site at the customer's premises or basic training of the installed peripheral components if required directly on site at the customer's premises, as standard at L&P in the training room or in the L&P laboratory.

other services:

- feasibility studies, generally before preparing an offer
- concept development, generally before preparing an offer
- specification/ performance specification/ preparation, if not available at the customer
- mechanical and electrical design (SolidWorks, EPLAN P8)
- overhaul and expansion of existing production and testing facilities
(relocation of complete systems)



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