

# Automated testing

System partner for high quality



- ✓ Leak testing
- ✓ Hydraulic functional testing
- ✓ Electropneumatic testing

# LIWO automated testing: The specialist for your industry



WE MAGNETISE THE WORLD

A close-up photograph of the front of a white car, showing the headlight assembly and side mirror. The image is set against a dark blue gradient background.

# Automotive

LIWO automated testing has been familiar with the processes, test methods and quality requirements of the major automotive suppliers, energy providers and the pharmaceutical industry for decades and has developed efficient system concepts for these industries.



**WEIDMANN**



**KUNSTSTOFF  
SCHWANDEN**

Pharmaceuticals /  
Mechanical  
engineering



# The testing and measurement technology from LIWO delivers what it promises

Testing, adjustment and measurement technology for your products



**Lippok & Wolf GmbH is a manufacturer of leak and functional testing systems for industrial production. The degree of automation ranges from manual test benches to fully automated systems. In this area, our core competencies include the construction of systems for leak testing as well as for hydraulic, pneumatic and electrical testing and calibration technology.**

## ☑ Helium leak tests



### **Testing system for injection pumps**

Testing system for multi-stage, tracer gas based leak testing of high-pressure injection pumps. Semi-automatic or fully automatic test benches for large-scale production worldwide.



### **Testing system for common rail components**

High-pressure leak testing for common rail: test pressures of up to 500 bar, combined with demanding boundary leak rates and high product diversity, require sophisticated plant concepts down to the smallest detail.



### **Testing system for CNG/LPG components**

Combination systems for multi-stage leak and functional testing of CNG/LPG pressure control units. Complex testing sequences with up to 20 individual tests including adjustment provide customers with a complete testing solution in a single setting.

## LEAK TESTING SYSTEM

LIWO leak testing systems are based on tried-and-tested and globally operating standard basic machines. Where necessary, these basic constructions can be adjusted within wide ranges according to product and customer requirements, without compromising on quality and reliability. In addition to various, highly innovative tracer gas methods, LIWO also masters the classical pressure measurement technology with ease. The choice of method is based on the best fit for each customer's requirement. All solutions from LIWO stand for the highest possible measurement accuracy and measurement speed in a compact, industry-compatible construction.

## HYDRAULIC AND PNEUMATIC TESTING TECHNOLOGY

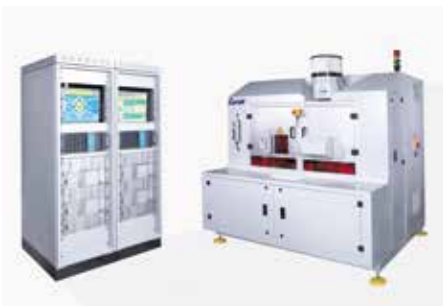
LIWO covers the testing requirements over the full spectrum for hydraulic or pneumatic system components in this field: from simple switching valves to complex control components, from the

simple measurement of flow rate or valve-seat through to calibration and the measurement and evaluation of control characteristic curves. These measurements can be combined with the measurement of the components' electrical properties. A special highlight is the pneumatic measurement of hydraulic components – with the major advantage of a clean and dry testing environment.

## MEASUREMENT OF ELECTRICAL AND MECHANICAL VARIABLES

LIWO has a modular construction system designed for industrial testing tasks. A wide range of industrial measurement and testing tasks can be covered as a result. For example, in the form of a single industrial rack that is fitted with various test units in accordance with the tasks.

### ☑ Hydraulic tests



#### Testing system for oil hydraulic gearbox pressure regulators

System to adjust the characteristic curve measurement of oil hydraulic pressure regulators.  
[Semi-automated for large-scale production]

### ☑ Electrical tests



#### Testing system for automotive relays

System for functional and parameter testing of electrical circuit breakers in the automotive industry.  
[Fully automated for large-scale production]



#### Testing system for water hydraulic conveyor units

System for functional and parameter testing of water hydraulic Pump modules.  
[Fully automated for series production]





# LIWO

The entire testing process from a single source

The creative think tank with all departments under one roof

**With LIWO, your automated testing is in good hands: all departments work closely together under one roof from process development and construction to electronics or software development and electrical workshop through to production or assembly. LIWO is therefore extremely flexible with quick response times and very well-positioned when it comes to organisation. Our internationally experienced project managers support our customers throughout the world. In doing so, modern project management and ERP systems ensure unobstructed project phases.**

System construction, testing technology and software from a single source .....

project planning

construction/development

pre-trials and tests

## Facts and figures

Establishment	1976
Registered office	Welzheim in the Stuttgart area
Employees	70
Surface area	2000 m <sup>2</sup>
Sales 2015	12 million
Customer locations	Europe, United States, Mexico, Canada, China, India, South Korea

### OUR OWN R&D DEPARTMENT

Our R&D department has designated metrological specialists and a well-equipped test laboratory. LIWO is therefore able to support customers and specialist departments in implementing metrological tasks over the entire project duration in an optimal way. Already in the bidding phase, the department works closely with our sales department. In so doing, we are always able to determine the optimum measurement and test methods for specific customer requirements.

### COMPREHENSIVE TEST LABORATORY

As specialists in our field, we have various chambers and devices for leak testing. In addition, we have systems to generate high pressures of up to 400 bar or devices to measure hydraulic components.

Digital microscopes and software modules for data recording and evaluation round off our wide range of test services offered. We hope you will get a lot of use out of them.

### DELIVERY AND MAINTENANCE WORLDWIDE

LIWO delivers and performs maintenance work on its systems throughout the world. Our employees are familiar and equipped to deal with all issues relating to sea and air freight as well as customs and import regulations for you. We have successfully completed the certification to become an approved exporter, which means that our customers can take full advantage of existing free trade agreements (FTA).

manufacturing/assembly

project management

commissioning/service

# Quality to meet the highest demands

## LIWO meets all the requirements of ISO to KVP

### ISO 9001 and ISO 14001

2005

Introduction of a quality management system and certification according to DIN EN ISO 9001:2008.

2008

Introduction of an environmental management system and certification according to DIN EN ISO 14001:2009.

### Process landscape according to BPMN (Business Process Modelling Notation) 2.0

We live for our quality management system and can therefore guarantee our customers the highest quality at all times. Our browser-based process landscape BPMN 2.0 supports us in the process.

### SAP B1 ERP and PPS system

Since 2004, LIWO has worked with SAP and the associated PPS system with which a direct link with our project planning system is possible.



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