

WE PUT QUALITY ON THE TEST BENCH

Tailored quality assurance solutions.



Quality is quantifiable and creates added value

Reduce costs with sustainable quality assurance.

Product quality has developed into a strategic competitive factor. With hydraulic test benches from Watz Hydraulik, you can be sure that your products meet the highest quality standards.

Watz Hydraulik plan and produces hydraulic test benches for diverse areas of test bench technology. Working in close coordination with our customers, we design the perfect solution for the projecting and final testing of your products and accompany the process all the way to commissioning. Our range of services stretches from standardised test benches for single or serial applications all the way to highly complex development test benches and end-of-line test benches on the production floor.

Our customers profit from excellent and sustainable quality which creates measurable added value. Our test benches enable the testing, improvement and assurance of the actual quality of your products, thereby decreasing production, delivery and claim times as well as production and process costs.

We provide you will get first-class engineering and programming services. Here, we exclusively use cutting-edge development tools from leading manufacturers.





YOUR SOLUTION FOR SERIAL
APPLICATIONS TO HIGHLY
COMPLEX DEVELOPMENT
TEST BENCHES.

The HMI (human-machine interface)

We make quality assurance easy.

Be it simple applications with limited machine frames or high-end solutions for sophisticated requirements – we provide you with the perfect interface. Based on your requirements, we use diverse visualisation software programs which are, however, guaranteed to be intuitive and easy to use as well as tailored to your needs.

Remote control – simple service and maintenance at any time

- Robust, fault-resistant and reliable
- Integrated support options via remote maintenance
- Direct access to your plant
- Instant malfunction correction
- No travel costs and high plant availability

Measured data recording – documentation and analysis at the push of a button

- Recording of complex visualisation and control tasks
- Centralised storage on industrial PCs
- Integrated system cards with automatic measured data backups
- Data exports to any storage device
- Available data can be processed and analysed

From an embedded to a high-end industrial PC: Customised solutions

- Data analysis
- Long-term archiving
- Versatile coupling options
- Automatic backups
- Easy to add new device types



We create perfect products even when the pressure's on

Burst pressure test benches from Watz Hydraulik.

You can also rely on us when it comes to strength testing. We plan and produce customer-specific test systems which are tailored to meet your needs.

Medium-carrying components such as hoses, pipes and pipe joints are often exposed to extreme conditions and must reliably resist defined pressures. To guarantee this component quality and strength, the components are subjected to dynamic and static pressure tests and tested until their bursting point. We are able to measure a component's burst pressure in a fraction of a second and confirm and document its quality. Depending on the individual application case, the pressure increase is continuously adjustable and is controlled via serial interfaces with end visualisation if needed.



Application example of a customer-specific high-pressure test bench. This test bench tests high-pressure valves up to 5,400 bar.



Innovative and reliable

Pulsation test benches from Watz Hydraulik.

Material fatigue testing plays a significant role in quality assurance and is becoming more and more important. With the help of pulsation and pressure pulse test benches, the life cycle and fatigue strength of parts and components can be tested. The components being tested are placed under pulsating pressure with a test liquid within predefined boundary values to simulate the internal load. Our innovative **Rotary System** offers multiple advantages:

Low-wear principle

With our **Rotary System**, we guarantee a significantly longer service life of your pulsation drives compared to the conventional use of highly sensitive servo valves with limited life cycles.

Pressure pulse and pressure curves

Our **Rotary System** makes exact and continuous adjustment of pressure pulse curves in any pressure range and frequency possible without the need for time-consuming programming.

The curves can be implemented with or without pressure peaks, thus simulating the real conditions of un-damped pressure build-up in hydraulic systems.



Application example of a pulsation test bench. This test bench can test the life cycle and fatigue strength of parts and components under real conditions.



Customisable and innovative

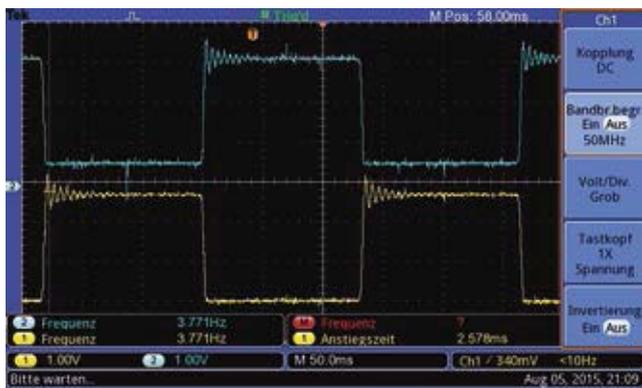
Test benches with expertise and a passion for the product.

All of our test benches have customer-specific designs and construction. If necessary, several pump circuits and pressure ranges can be implemented. The following performance specifications make our pulsation test benches stand out:

- Maximum pulse pressure 650 bar
- Pulse frequencies from 1 to 15 Hz – adjustable
- Continuously adjustable pressure curve change
- HLP hydraulic oil as test medium
- Test oil temperature control
- Comprehensive measured data recording
- Switches off automatically after pulse number has been reached or the test unit bursts
- Frequency-controlled drive motors or servo motors
- Safety equipment in accordance with UVV provisions

Pressure curve description

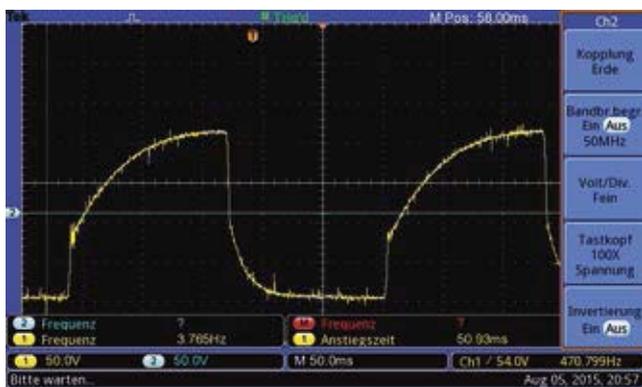
The following images illustrate pressure progression curves recorded in-house with a digital oscilloscope. The images show the possibilities provided by the continuous adjustability of the pressure curves. The pressure pulse test benches are equipped with A and B connections so that one test unit can be connected at each port. Pressure is applied to the A and B connections in alternating fashion; the curve progressions are, however, only identical if the volumes of the test units are the same. The pressure at the connections A and B are determined by the pressure set at input P. The pressure drop to nearly 0 bar is, on the one hand, somewhat system dependent and, on the other, dependent on the degree of contamination of the downstream return filter. Generally, the pressure pulse test bench can also be operated with only one connection – for example, A or B.



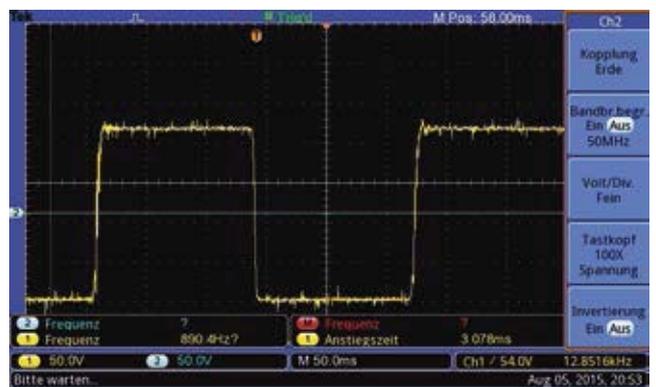
Two test units, one on connection A and one on connection B, with identical curves and loaded in alternating fashion. The pressure increase is relatively un-damped and shows the pressure peak with transient response. The pressure drop is un-damped and falls sharply to nearly 0 bar.



Test unit on connection A. The pressure increase is un-damped and shows the sharp pressure peak with transient response and the resulting shortened pressure dwell time. The pressure drop is un-damped and falls sharply to nearly 0 bar.



Test unit on connection A. The pressure increase is highly damped and delays the increase speed so much that there is no pressure dwell time. The pressure drop is damped and falls with an approximately 50% delay to nearly 0 bar.



Test unit on connection A with rectangular pulse. The pressure increase is damped and shows no pressure peak, thus reaching the maximum pressure dwell time. The pressure drop is un-damped and falls sharply to nearly 0 bar.



Direct quality testing

End-of-line test systems from Watz Hydraulik.

Use our strengths as a test bench builder and integrate your quality testing directly in your production line. For car manufacturers and manufacturers of filters, hydraulic components, fixtures and pumps, we implement high-quality semi-automatic or fully automatic test benches and test stations for integration in the production line.

To ensure product quality during production and assembly as well as full final inspection, the test units are mounted in a workpiece fixture, hydraulically adapted and, if necessary, sealed and connected electrically. Then, the configured test procedure starts. This subjects the test unit to specific pressures or pressure flow amounts with oil. The pressure progressions generated by the test unit, the absolute pressures, pressure flow amounts, temperatures, force distance and torque angle of rotation curves are recorded as response signals, evaluated

and compared with the configured set point values. The tests include the testing of opening and closing pressures, cavity volumes, throughput, tightness, throughput amounts, standard behaviour and actuation forces.

Detailed image of a test bench. With the fully automatic test bench, the components are subjected to a precise functional test, and precise key figures are recorded. This is how we create sustainable benefit for our customers.





This test bench tests hydraulic pumps and motors up to 450 l/min. at a maximum pressure of 500 bar and subjects them to a performance test before they are delivered to the customer.





Universal hydraulic and valve tests in open and closed circuits are performed on this test bench. Maximum volume flow 150 l/min. and maximum pressure of 560 bar.



Modernisation, expansion and increased efficiency

Contemporary solutions for existing systems.

Do you need an adaptation or expansion to your existing testing capacity? No problem. Watz will turn your test system into a top-performance comeback.

Requirements change. But this does not necessarily mean that older systems need to be replaced with new ones. Often a modernisation is all that is required. We review your performance data and carry out the respective renovation and modernisation, even on third-party systems. Here, our experts analyse the data of the existing system and upgrade it to the current state of technology. This way, you increase the life cycle of your test bench and lower the total cost of ownership (TCO). An essential factor is interruption-free production – and we take this into account.

Cross section of a pump/motor test bench. All test procedures are carried out automatically according to programs created by us, and all procedures are visualised and logged.





Watz Hydraulik GmbH
Auweg 8
35457 Lollar
Germany

Phone: +49 (0)6406 910 20
Fax: +49 (0)6406 910 241
info@watzhydraulik.de
www.watzhydraulik.de