

Leak and Pressure Testing

What Is Leak and Pressure Testing?

At **Applus+ Laboratories**, we perform **leak tests**, **pressure pulse tests**, and **burst pressure tests** to ensure the performance, quality, and safety of hydraulic components, pipework, fittings, screw connections, fuel lines, cooling systems, injection systems, rails, and more. These tests can be used both for **approval tests** (e.g., for hydraulic systems) and for **comprehensive validation** of components like fuel rails and exhaust gas recirculation coolers.

Which Standards Do We Test Against?

We work to **internationally recognised standards** and **certification requirements**, including:

- **IACS (International Association of Classification Societies)**: Requirements concerning pipes and pressure vessels
- **GL (Germanischer Lloyd)**: Classification and construction regulations, pipe fittings
- **DNV (Det Norske Veritas)**: Type testing of pipe connections
- **BS 4368 (British Standard)**: Pressurised pipe connections
- **DIN EN ISO 19879**

What Leak, Pressure Pulse, and Burst Pressure Testing Do We Perform?

Our expert teams carry out:

- **Pressure impulse tests**
- **Hydraulic pulsation tests**
- **Combined pressure impulse and vibration tests (IACS, GL, DNV)**
- **Burst pressure tests**
- **Leak tests with various media (oil, water, nitrogen, helium, etc.)**

These tests address different aspects of product integrity and performance, from detecting small leaks to assessing resistance to repeated pressure loading and catastrophic failure thresholds.

What Is Leak Testing?

Leak testing is a [non-destructive testing](#) method used to verify the tightness of components or to pinpoint leakage sites. We perform:

- **Leakage tests with various media** (e.g., oil, water, nitrogen, helium)
- **Vacuum testing**

What Is Pressure Pulse Testing?

In **pressure pulse testing**, the test specimen is periodically impacted with **defined pressure surges** by a pulse generator to check its **fatigue strength**. This helps determine how the component will perform under **dynamic, cyclical loading**.

Our capabilities include:

- **Hydropulse tests**
- **Combined pressure pulse and [vibration tests](#)** (in accordance with IACS, GL, DNV) where hydraulic fittings are additionally subjected to internal pressure and bending.

What Is Burst Pressure Testing?

Burst pressure testing is a **destructive** test. The test specimen is subjected to a **continuously increasing pressure** until it **bursts or breaks**, revealing its **maximum pressure tolerance** under extreme conditions.

What Are Our Leak, Pressure Pulse, and Burst Pressure Testing Parameters?

We cover a wide **test spectrum** to simulate real-world conditions. Our key testing parameters include:

- **Maximum Pressure:**
 - Up to **1,400 bar (dynamic)**
 - Up to **2,000 bar (static)**
- **Pulse Frequency:** Typically **1 Hz**, up to **20 Hz** (sinusoidal)
- **Vibration / Bending Frequency:** Up to **20 Hz**
- **Curve Shapes:** Sine, triangle, trapezoid, or **standardised curves** (e.g., IACS P2. 11.5.5.3)
- **Temperature Range:** **-40°C to +140°C**

What Is Leak, Pressure Pulse, and Burst Pressure Testing For?

These tests are **critical** for validating the **safety and reliability** of components that operate under pressure. By identifying potential weak points, leaks, or early signs of fatigue, manufacturers can:

- **Enhance Product Reliability**
- **Ensure Compliance** with industry standards and customer requirements
- **Reduce Risk** of failure and costly recalls

What Products Do We Test?

We test a **broad range** of products and components, including:

- Hoses and pipes
- Fittings
- Quick couplings
- Pumps and motors
- Valves
- Distributors
- Filters
- Hydraulic power steering systems

Why Choose Applus+ Laboratories for Leak, Pressure Pulse, and Burst Pressure Testing?

- **Comprehensive Services:** We offer a **full suite** of tests, from leak detection to fatigue testing to burst pressure evaluation, ensuring you get a **complete validation**.
- **Advanced Equipment and Techniques:** Our **cutting-edge testing facilities** are designed to handle **high pressures, dynamic loads, and extreme temperatures**, providing **accurate and reliable** results.
- **Expert Team:** Our specialists bring **extensive experience** in **hydraulic systems, fuel lines, cooling systems**, and other high-pressure components, guaranteeing **robust solutions** tailored to your needs.
- **Internationally Recognized Standards:** We work according to IACS, GL, DNV, BS, and DIN EN ISO, ensuring that your products meet the highest quality and safety standards.
- **Flexible Testing Solutions:** From **one-off approvals** to **long-term validation projects**, we offer **scalable** testing programs that accommodate your **production timeline and budget**.
- **Fast, Clear Reporting:** We provide **prompt, comprehensive, and transparent** reports, enabling you to **quickly implement** improvements or **confirm compliance**.

Contact [Applus+ Laboratories](#) to learn how our **leak testing, pressure pulse testing, and burst pressure testing** services can ensure the **quality, safety, and reliability** of your components and systems.

