

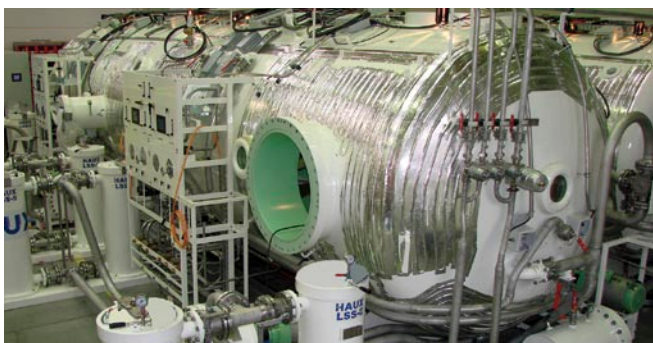


Certification, design assessment and technical calculations for pressure vessels

Helping you to work under pressure

A challenge to your business

Extreme operating and maritime environment conditions demand engineering services of the highest quality for pressure vessels and piping systems. Ocean exploration, for example, is taking place at ever-greater depths; today's typical operating conditions may include increased pressures, cryogenic tank and process applications or corrosive and hazardous fluids combined with greater pressure. As conditions become more severe, the certification, design assessment and technical calculation services for pressure vessels and piping systems need to be in highly experienced hands – so your pressure vessels and piping systems are of the highest standard and your company's reputation does not suffer.



GL also has the technical expertise to certify special pressure vessels for sophisticated applications

The solution you need

At Germanischer Lloyd (GL) we can point to many years of expertise and experience in the design assessment of pressure vessels and piping systems in combination with material and welding technology. This enables us to provide a wide range of engineering services:

- Certification, design assessment and strength calculations for pressure vessels, heat exchangers, high-pressure piping systems and cargo tanks in line with various internationally recognised standards such as EN, AD 2000 and ASME
- Special design assessment of combined pressurised systems for liquid natural gas (LNG)/liquid petroleum gas (LPG), chemical applications for ships and maritime plants
- Fatigue strength, FEM and shock analysis
- Pipe stress analysis
- Design assessment for underwater pressure system applications and submarines
- Material and welding assessments for pressurised systems
- Research and development for pressure vessel, tank & piping applications in special ship processes



GL approved diving bell fitted for rough diving conditions

GL – your best partner

Why turn to GL for certification, design assessment and technical calculations in this field? As a world's leading IACS classification society for pressure vessel and underwater technology, GL's expertise in this field is second-to-none. Ever since 1867, GL has been working to improve the safety, reliability and technical standards of all kinds of vessels and maritime applications. Our process experience covers areas such as:

- Pressure vessels and heat exchangers for ships, offshore installations and industrial facilities
- Liquid oxygen and hydrogen tanks for ships and offshore applications
- LNG/LPG tanks, bilobetank, and chemical applications
- Pressure vessels for oil and gas facilities
- Fuel cell H₂/O₂ pressure vessels for naval submarines
- Pressure hulls for naval and civil submarines

Benefits that make all the difference

- One of the world's leading IACS classification societies for pressure vessel and diving technology
- Many years of experience in the risk-based design of ships, including optimised risk-based design assessment for safe pressurised process systems and machinery
- Global network of highly experienced engineers, scientists and surveyors in 208 offices around the world
- Secure, state-of-the-art global exchange system for paperless plan approval (GL globe)
- Advanced software engineering solutions
- Full support in ensuring your pressure vessel operates efficiently and safely

One-stop shopping at GL

By combining various services from GL's comprehensive pressure vessel portfolio you can save yourself time and money. You can not only take advantage of our **certification, design assessment and technical calculation services** for your pressure vessel but also benefit from similar services for underwater vehicles and working machines. Our one-stop shopping portfolio also includes a variety of **welding technology services** and **certification to ISO 9001 or 14001** as well as **assessment services for material manufacturers**, and **Pressure Equipment Directive (PED) or Transportable Pressure Equipment Directive (TPED) certification for pressure equipment**.

Please take an information tour on our homepage www.gl-group.com/supplyindustry for more combinable products and services.

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