



# *Certification of Yacht*

Classification

## *Catchword Safety*

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Buyers of a recreational craft - be it a yacht or a dinghy - expect to get good value for their money. Plus safety, in every respect.

Sellers of boats will - most definitely - promise both. However, will you be able to check such statements? As far as structural safety is concerned, you will: if you enquire about a safety or construction certificate issued by a classification society. This is the only alternative, for the following reasons.

## *Structural Safety in Boat Construction*

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Adequate structural safety can only be confirmed impartially by a classification society, such as Germanischer Lloyd.

The Society has a long tradition - reaching back more than 130 years - in the examination and checking of the design and construction of boats and yachts, including even tall sailing ships.



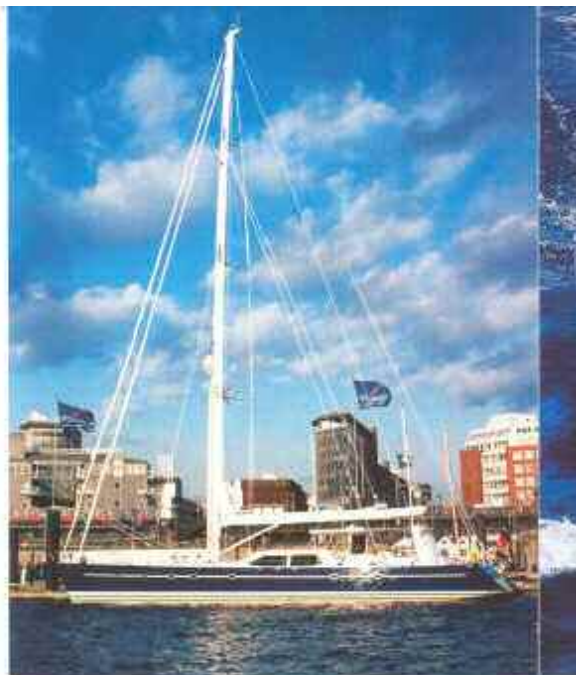


## *Class for Class*

Yachts and boats holding a GL class certificate meet the highest technical safety requirements. Each individual vessel is examined and supervised by Germanischer Lloyd, starting with examination of the construction plans, up to final inspection,

This includes:

- Examination of construction plans, drawings and computations for the hull including rigging, the engines and the electrical installation for compliance with the GL Construction Rules
- Continuous supervision of construction by GL surveyors for compliance with the Construction Rules
- Exclusive use of materials and components tested and/or approved by GL
- Approval of the shipyard by GL for defined production methods and surveillance for observance of the relevant requirements
- Furnishing of proof by the workshop of its qualification, e.g. for the application of certain welding or laminating processes (FRP)
- Employment by the shipyard of qualified personnel, confirmed by test certificates
- Performance of surveys by GL at intervals of five years as a prerequisite for maintenance of class. For large motor yachts, an intermediate survey is required in addition.



GL-classed craft will be issued the class certificate

✦ 100 A 5 SAILING YACHT

or

✦ 100 A 5 MOTOR YACHT

The class will increase the value of your ship – when you buy it, when you sell it and also with regard to your personal safety. This is why classification by GL proves to be useful for advertising purposes.

## *Construction Certificate for the Hull*



If you wish confirmation of compliance with GL Construction Rules for the hull only, a construction certificate and the "Approved Hull Construction" plaque is issued by GL after the appropriate inspections and construction supervision.



## Series Construction

Nowadays many FRP yachts and boats are built in large series. However, full classification is not absolutely necessary in such cases; the procedure can be simplified by a series construction certificate confirming systematical series-production supervision by GL based on inspection procedures specially designed for series.

The series construction specification issued by Germanischer Lloyd defines the scope of examination by detailing the technical particulars for examinations and drawings.

## Series Construction Supervision of the Hull



The minimum scope of inspection covers:

- Hull, including internal structural elements and bulkheads
- Fin keel, including floor plates
- Deck, including superstructures and cockpit
- Chain plates
- Rudder stock, including bearing and trunk, as well as rudder body
- Weather-tightness of all outer closures







## *Extended Series Construction Supervision as per 100 A5*

In this case, Germanischer Lloyd examines and tests the prototype of the series to the extent of classification and issues a class certificate. Examinations and inspections cover the hull including rigging, machinery and electrical installations, as well as the closures. The ensuing production in-series, too, is subject to systematical series-production supervision.

The series construction certificate offers owners or buyers of yachts the following guarantees:

- Materials are tested and approved by GL
- Fibre-reinforced plastics are manufactured and processed by qualified personnel at an approved workshop under controlled conditions.
- The dimensions of the components comply with GL rules.

The extended series construction supervision necessitates additional quality tests, corresponding to the scope of classification.

It should be observed that later checks of the structural safety of FRP vessels and components imply unreasonably high costs!



This is one of the reasons why many renowned boat manufacturers have voluntarily subjected themselves to quality control by classification societies. They are right in combining advertising for their product with this proof of safety.

However, caution is advisable: if boatbuilding yards or dealers employ formulations such as "constructed according to GL requirements", this normally reflects a subjective judgement. Whether or not Germanischer Lloyd's Construction Rules have indeed been observed remains to be confirmed by the Society alone.

## *Approval and Certification of rigs with carbon-fibre spars*

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Activities are also increasingly performed by GL in the non-classification sector. These include computations related to the stability, strength and vibrations of sailing and motor yachts and for the optimization of different components. Thus, for instance, carbon-fibre masts are nowadays increasingly employed on sailing yachts. The advantage offered by them is a reduction in weight by up to 50 percent, as compared to aluminium masts. This lighter weight results in increased stability and consequently increased safety of the yacht.

However, optimization of weight, particularly in combination with fibre-reinforced plastics, requires more complex methods of computation down to the last detail.

Therefore - following several damage cases - an insurance broker well known in yacht construction circles demands approval of carbon-fibre masts by an independent expert organization. As a result of this we have developed a catalogue of regulations, on the basis of which yacht rigs are certified by us on request. Such certification may, of course, be extended such as to include supervision of construction.

Several carbon-fibre masts up to a height of 40 m have already been approved by us - tendency increasing.







## CE Certification

In view of increased activities we have set up a Yacht Certification Body. It carries out the functions resulting from the Directive for Recreational Craft (94/25/EC).

This EC Directive was passed in mid- 1994 and applies to recreational craft of between 2.5 and 24 m in hull length. The reason for initiating the Directive was that different national regulations of the individual member countries were considered to constitute technical barriers to trade, so that harmonization was required. The EC Directive was transformed into national law in 1995.

Since then, irrespective of their country of origin, craft with CE marking only may be placed on the market within the EU.

The transitional period to be observed expires on 16 June 1998. The CE marking certifies that the craft complies with the essential safety requirements of the Directive. In 1996 we were accredited as "Certification and Testing Body" by the competent Zentralstelle der Länder für Sicherheitstechnik (ZLS), in order to carry out the examinations and tests required by the EU Directive and to award the CE marking of conformity.



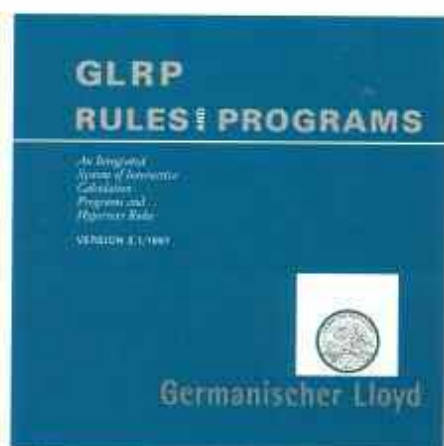
The assumption underlying the Directive is that the risk to the craft increases with the distance from a safe haven. Depending on the boat design category and length of the craft, the following categorization is envisaged:

- A – Ocean
- B – Offshore
- C – Inshore
- D – Sheltered waters

The certification procedure to be followed by the certification body takes into account these boat design categories. It is subdivided into seven so-called "modules" and covers the whole range from declaration by the builder for craft trading in sheltered waters up to type examination or unit verification of seagoing yachts.

Shipyards, importers, and private persons alike are responsible for conformity with the Directive of the craft placed on the market by them.

# *Always up-to-date Programs, Rules and Regulations*



The high standards expected to be met by us as a recognized impartial and independent organization of technical experts acting world-wide are based on the continued further development of our rules and regulations. This ensures their being accepted as established engineering practice. Through the broad spectrum spanned by them they document the Society's widespread know-how and extensive technical competence. Experience gained in service and recent knowledge acquired as a result of research and development are reflected in the rules and regulations. Adaptations to new developments in engineering and technology are incorporated in consultation with the Technical Advisory Committee and its associated technical committees. The composition of these committees ensures that all parts of the rules and regulations are generally valid, always up-to-date and accepted. For achieving this, the use of advanced communication technology is an indispensable prerequisite.

## *GL Yacht Construction Rules*

The Rules for Classification and Construction, I - Ship Technology, Part 3 - Pleasure Craft, Chapters 1 to 5, are available as 1996 edition, including Appendices and Supplements, in German and English language. The Yacht Scantling Rules are also available on this CD-ROM. As a package, together with other Ship Technology Rules, this CD-ROM is linked with our GL Yacht Dimensioning Program.

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