

## Section 1

### General Requirements

#### A. Application, Scope

##### 1. Application

**1.1** These Rules apply to large, seagoing motor and sailing yachts with a length  $L \geq 24,0$  m for private, recreational use, provided that the yacht classed and approved in accordance therewith is at all times employed exclusively under the conditions for which it has been designed, constructed and approved and that it is equipped and handled in the sense of good seamanship, and operated at a speed adopted to the respective seaway conditions.

Designs which deviate from these Rules may be approved, provided that such designs have been examined by GL for suitability and have been recognized as equivalent.

Notes containing amendments, recommendations, etc. are always printed in italics. Other italic script in these Rules indicate matters not part of Classification.

##### Note

*Ships with  $24\text{ m} \leq L \leq 48\text{ m}$  intended for commercial purposes which do not carry more than 12 passengers, may be dimensioned according to Section 2, D. and E. of these Rules, taking supplementary factors into account, which have to be agreed upon with GL. The length  $L$  is defined in Section 2, A.6.*

**1.2** Whether and/or to which extent the GL Rules Part 1 – Seagoing Ships, Chapter 5 - High Speed Craft may have to be applied to a particular design will be decided in the individual case.

**1.3** Yachts with a length  $6\text{ m} \leq L_{SC} \leq 24\text{ m}$  are covered by the GL Rules Part 3 – Special Craft, Chapter 3 – Yachts and Boats up to 24 m and are not subject of these Rules.

##### 2. Special aspects for yachts

Contrary to merchant ships the following aspects will usually apply regarding the operation of yachts:

- less severe operating conditions as for ships in regular trade
- limited yearly sea hours in relation to harbour hours

- special care by the owner and usually good maintenance

These Rules were developed assuming these characteristics.

##### 3. Scope

**3.1** The requirements of these Rules do not substitute the independent judgement of professional designers. This is particularly valid for those aspects not addressed in these Rules and for which the designers are solely responsible.

**3.2** The Rules envisage primarily technical safety matters. Aesthetical and comfort aspects, usually important in yacht design, are not considered and must be subordinated to the safety requirements in conflict cases.

##### 4. Scope of Examination/Classification according to GL Rules

###### 4.1 Plan approval

Plan approval will only be carried out once appropriate and sufficient documentation has been submitted to GL.

###### 4.2 Hull Construction Certificate

The scope of examination and construction survey related to the issuance of a Hull Construction Certificate refers to the hull structure only. The hull structure has to be in compliance with the relevant scantling requirements of these Rules.

###### 4.3 Classification

If a yacht is subject to Classification, all aspects in addition to the hull structure, i.e. machinery and electrical installations and ship safety matters have to be considered and must comply with the requirements of these Rules. The GL Surveyors will supervise the complete construction phase of the yacht. As Class is granted only for a limited period of time, the complete surveying procedures during service of the yacht have to be established if Class of the yacht shall be maintained.

For more details about Classification and Class Notations see GL Rules Part 0 – Classification and Surveys, Section 2.

## 5. Types of yachts

In addition to the Character of Classification, yachts will be characterized by Notations affixed, describing their type and envisaged use, as shown in the following examples.

### SAILING YACHT

### MOTOR YACHT

### SPECIAL YACHT

#### Note

*The term "special" applies to yachts of unusual shape/dimensions and with special technical equipment, if any. GL reserve the right of determining whether the GL Rules are applicable and how they are to be interpreted.*

## 6. Consideration of other regulations

### 6.1 National regulations of various flag states

GL is prepared to include in its supervisory procedures the national regulations of the flag state of the yacht if the owner of the yacht wants to include this additional service and if GL is authorized by the particular flag state to do so.

### 6.2 Regulations of the Maritime and Coastguard Agency (MCA)

GL is prepared to consider in addition to its own Rules the regulations of the UK Maritime and Coastguard Agency if the owner of a yacht chooses this option. If the yacht is in compliance with these requirements the following Class Notation will be granted:

**CMCA** Notation for motor and sailing yachts, the compliance of which is certified in accordance with "The code of practice for safety of large commercial sailing & motor vessels" of the Maritime and Coastguard Agency (MCA)

## 7. Range of service

Yachts complying with the Construction Rule requirements for a restricted range of service only will have the Notations specified below affixed to their Character of Classification.

### M (Restricted International Service)

This range of service is limited, in general, to voyages along the coast, provided that the distance to the nearest port of refuge and the offshore distance do not exceed 200 nautical miles. This applies also to voyages in the North Sea and within enclosed seas, such as the Mediterranean, the Black Sea and waters with similar conditions. Voyages to Iceland, Spitzbergen and the Azores are exempted.

### K (Coastal Service)

This range of service is limited, in general, to voyages along the coasts, provided that the distance to the nearest port of refuge and the offshore distance do not exceed 50 nautical miles. This applies also to voyages within enclosed seas such as the Baltic Sea and gulfs with similar seaway conditions.

Where a permissible distance of less than 50 nautical miles has been fixed for a yacht, the relevant distance will be added in brackets behind the Notation **K** in the Class Certificate, e.g. **K(20)**.

### W (Sheltered Water Service)

This range of service is limited to voyages in shoals, bays, haffs and firths or similar waters, where heavy seas do not occur.

The Notations may possibly be assigned on the basis of the seaway conditions prevailing in the respective service area (e.g. official seaway statistics).

Observance of the range of service boundaries is a prerequisite for validity of the Class.

GL may, on application, agree to the range of service being extended for a limited period and/or with certain reservations. This will have to be documented.

## 8. Ambient conditions

### 8.1 General operating conditions

The selection, layout and arrangement of the yacht's structure and all shipboard machinery, equipment and appliances shall be such as to ensure unobstructed continuous operation under the ambient conditions specified in these Rules.

### 8.2 Inclinations and movements of the yacht

The design limits for yacht inclinations and movements are defined in Table 1.1.

Account is to be taken of the effects of distortion of the yacht's hull on the machinery installations.

### 8.3 Environment of the yacht

The design environmental conditions of a yacht are defined in Table 1.2.

## 9. Vibrations and noise

*Vibrations are defined as structural oscillations in the frequency range of 1 Hz to 80 Hz. Noise is defined as audible air pressure variations, generated for instance by main engines and propellers, auxiliary machinery, equipment and persons within the frequency range of 16 Hz to 16 000 Hz.*

Table 1.1 Design limits for yacht inclinations and movements

Type of movement	Type of inclination	Standard requirements
<b>Static condition</b>	<b>Inclination athwartships:</b> <sup>1</sup>	
	Main and auxiliary machinery	15° <sup>2</sup>
	Other installations <sup>3</sup>	22,5° <sup>2</sup>
	No uncontrolled switches or functional changes	45° <sup>2</sup>
	Yacht's structure	acc. to stability requirements
	<b>Inclination fore and aft:</b> <sup>1</sup>	
	Main and auxiliary machinery	15°
	Other installations <sup>3</sup>	10°
<b>Dynamic condition</b>	<b>Rolling:</b>	
	Main and auxiliary machinery	22,5°
	Other installations <sup>3</sup>	22,5°
	<b>Pitching:</b>	
	Main and auxiliary machinery	7,5°
Other installations <sup>3</sup>	7,5°	
<sup>1</sup> athwartships and fore and aft inclinations may occur simultaneously <sup>2</sup> for sailing yachts special considerations may be relevant <sup>3</sup> yacht's safety equipment, switch gear and electric/electronic equipment		

Table 1.2 Design environmental conditions

Environmental area	Parameters	Assumed conditions
<b>Outside the yacht/air</b>	Temperature: – at atmospheric pressure – at relative humidity of	– 25 to + 45 °C <sup>1</sup> 1 000 mbar 60 % <sup>2</sup>
	Max. salt content	1 mg/m <sup>3</sup> withstand salt-laden spray
	Dust/sand	to be considered
	Wind velocity (lateral)	63,6 – 71,7 kn <sup>3</sup>
<b>Outside the yacht/seawater</b>	Temperature <sup>4</sup>	– 2 to + 32 °C
	Density acc. to salt content	1,025 t/m <sup>3</sup>
	Flooding	withstand temporarily
<b>Outside the yacht/ navigation in ice</b>	Ice Class Notations	see GL Rules Part 1 – Seagoing Ships, Chapter 1 – Hull Structures, Section 15
<b>Entrance to the yacht</b>	Air temperature	– 15 to + 35 °C
	Max. heat content of the air	100 kJ/kg
	Seawater temperature	– 2 to + 32 °C
<b>Inside the yacht/all spaces</b>	Air temperature: – at atmospheric pressure – at relative humidity of	0 to + 45 °C 1 000 mbar up to 100 % (+ 45 °C)
	Max. salt content	1 mg/m <sup>3</sup>
	Condensation	to be assumed
	<b>Inside the yacht/ air conditioned areas</b>	Max. air temperature Max. relative humidity Recommended ideal climate for manned computer systems
<b>Inside the yacht/ in electrical devices with higher degree of heat dissipation</b>	Air temperature	0 to +55 °C
	Max. relative humidity	100 %
<sup>1</sup> higher temperatures due to radiation and absorption heat have to be considered <sup>2</sup> 100 % for layout of electrical installations <sup>3</sup> according to Beaufort 12, see Section 3, D 7.2.2. <sup>4</sup> GL may approve lower limit water temperatures for yachts operating only in special geographical areas		

## 9.1 Vibrations

**9.1.1** On board yachts vibration may become important with respect to the following issues:

- annoyance of owner, passenger or crew
- functioning of electronic devices, main and auxiliary machinery
- integrity of structures

**9.1.2** It is recommended that in the building specification maximum vibration levels are agreed on. If desired, GL can give guidance in this respect.

**9.1.3** It is recommended that theoretical investigations will be performed from an early design stage in order to identify critical points of the individual design. If desired, GL can give guidance in this respect.

**9.1.4** Electric or electronic devices relevant for the ship's safety and functionality have to withstand the vibration loads as defined by type testing procedures in [Part 1 – Seagoing Ships, Chapter 3 – Electrical Installations, Section 1, Table 1.4](#).

**9.1.5** Masts shall be constructed in such a way that no resonance of basic vibration modes with relevant excitation frequencies is present. The mast foundation shall be constructed as stiff as possible.

**9.1.6** Vibration may damage machinery or equipment. Vibration can be self-excited, as in the case of propulsion machinery, or is caused by excitation from its foundation. In any case machinery and equipment shall withstand vibration loads without loss of intended function.

**9.1.7** Vibration limits regarding reciprocating main engines and auxiliary machinery are defined in [Part 1 – Seagoing Ships, Chapter 2 – Machinery Installations, Section 1, C.2](#).

**9.1.8** The main tuning frequencies of resilient machinery supports must be compared to the relevant excitation frequencies which occur on the individual ship. The properties of the mounting elements must be chosen in such a way that the safety margin between those frequencies is sufficient.

**9.1.9** Excessive vibration may damage the ship's structure. Therefore, it has to be ensured that local structures in vicinity of the propellers or the main machinery are not vibrating in resonance with one of the relevant excitation frequencies created by the propeller or other machinery.

## 9.2 Noise

Suitable precautions are to be taken to keep specified sound level limits, particularly in the owner and guest accommodations, crew quarters, etc.

Regarding crew's quarters the IMO code on noise levels on board ships may be taken as guidance. Sound level limits for owner and guest spaces should be agreed on between owner and yard.

If requested by the yard and/or owner GL is prepared to carry out a noise review in the pre-contract or early design state as well as reviewing the building specification with reference to noise matters.

Further services e.g. detailed noise prediction, noise measurements, acoustic factory tests, etc. can also be provided by GL upon request.

## B. Hull Structures

### 1. Special requirements for yachts

The requirements for the hull structures and the related equipment are defined in [Section 2](#).

### 2. Relevant other GL Rules and Guidelines

For the design of the hull structure the following other Rules for Classification and Construction of Germanischer Lloyd will mainly be referred to:

- I – Ship Technology  
Part 0 – Classification and Surveys
- I – Ship Technology  
Part 1 – Seagoing Ships  
Chapter 1 – Hull Structures
- I – Ship Technology  
Part 1 – Seagoing Ships  
Chapter 5 – High Speed Craft
- I – Ship Technology  
Part 4 – Special Equipment  
Chapter 2 – Rigging Design
- I – Ship Technology  
Part 4 – Special Equipment  
Chapter 5 – Guidelines for the Design and Construction of Large Modern Yacht Rigs
- I – Schiffstechnik  
Teil 1 – Seeschiffe  
Kapitel 13 – Vorschriften für Klassifikation und Bau von hölzernen Seeschiffen <sup>1</sup>

<sup>1</sup> Translation: "Rules for Classification and Construction of Wooden Seagoing Ships" (not available in English)

- II – Materials and Welding  
Part 1 – Metallic Materials
- II – Materials and Welding  
Part 2 – Non-metallic Materials  
Chapter 1 – Fibre Reinforced Plastics and Adhesive Joints
- II – Materials and Welding  
Part 2 – Non-metallic Materials  
Chapter 2 – Wood
- II – Materials and Welding,  
Part 3 – Welding
- VI – Additional Rules and Guidelines  
Part 2 – Lifting Appliances  
Chapter 2 – Guidelines for the Construction and Survey of Lifting Appliances

## C. Machinery Installations

### 1. General

On principle yachts shall meet the requirements of Part 1 – Seagoing Ships, Chapter 2 – Machinery Installations for "cargo ships" as far as applicable.

The exceptions from this principle and/or special, deviating requirements for yachts are defined in the following.

### 2. Special requirements for yachts

#### 2.1 General rules and instructions

##### 2.1.1 Ambient and general operating conditions

The conditions are defined in A.8. Special attention shall be given to the operating conditions of sailing yachts.

##### 2.1.2 Propulsion plant, turning appliances

Turning appliances for main engines need not be provided unless specified by the engine manufacturers as standard.

Yachts with more than one propulsion system shall be equipped with shaft brakes unless the gearbox is designed for operation under trolling conditions or an independent trolling pump is fitted. All propulsion systems of sailing yachts with non-declutchable propeller shafts/gearboxes shall have a shaft brake.

## 3. Main shafting

### 3.1 Shaft dimensions, minimum diameter

For determining the minimum shaft diameter the factor  $F$  for the type of propulsion installation may be taken as  $F = 95$  and the actual tensile strength  $R_m$  shall be used for calculating the material factor  $C_w$ , see Part 1 – Seagoing Ships, Chapter 2 – Machinery Installations, Section 4, C.2.

### 3.2 Temperature indication

An indication of the temperature of the stern tube bearing or of the lubrication oil need not be provided for yachts of a length  $L \leq 48$  m.

## 4. Gears, couplings

The minimum safety margins for endurance limits for contact stress and percentage area of contact as defined in Tables 5.4 and 5.6 Part 1 – Seagoing Ships, Chapter 2 – Machinery Installations, Section 5 shall be applied.

## 5. Propeller

### 5.1 Controllable pitch propellers, indicators

Controllable pitch propeller systems are to be provided with a mechanical indicator at the controls in the engine room, showing the actual setting of the blades. Further blade setting indicators are to be provided on the bridge.

### 5.2 Balancing

The finished propeller and the blades of controllable pitch propellers are required to undergo static balancing. For propeller revolutions above 500 rpm also dynamic balancing is recommended.

## 6. Steam boilers, pressure vessels

For yachts of a length  $L \leq 48$  m all equipment under pressure shall be in accordance with a recognized standard. For yachts of a length  $L > 48$  m the pressure equipment has to meet the GL Rules Part 1 – Seagoing Ships, Chapter 2 – Machinery Installations, Section 7a and 8.

## 7. Pipes, valves, fittings and pumps

### 7.1 Testing of materials

For yachts of a length  $L \leq 48$  m, material certificates 3.1.B according to DIN EN 10204 for fittings and valves in pipe classes I and II may be provided.

## 7.2 Oil fuel systems, filters

Any internal combustion engine, regardless of its intended use, shall be equipped with duplex type water separators incorporating pre-filter elements. Changing of filter elements and draining of the separator shall be possible with the engine operating.

## 7.3 Service tanks

For motor yachts of a length  $L \leq 48$  m and all sailing yachts fuel oil service tanks need not be provided.

## 7.4 Lubricating oil system

For internal combustion engines single lubricating oil filters are acceptable for sailing yachts and motor yachts with more than one propulsion engine.

## 7.5 Lubricating oil pumps, main engines

Yachts for restricted service or with more than one main propulsion system need not have redundant lubricating pumps. Yachts for unrestricted service and with a single propulsion plant shall have a redundant lubricating pump or carry on board a spare lubricating pump.

## 7.6 Bilge systems

### 7.6.1 Calculation of pipe diameters

#### 7.6.1.1 Main bilge pipes

The diameter  $d_H$  of the bilge main shall be calculated according to the following formula. The actual inside diameter of the bilge main shall be rounded to the next higher nominal standard:

$$d_H = 25 + 1,68 \sqrt{L (B + H)}$$

$d_H$  = the calculated inside diameter of the main bilge pipe [mm]

$L$  = the length of the yacht [m] as defined in Section 2, A.6.

$B$  = for monohull yachts, the breadth of the yacht in [m] as defined in Section 2, A.6.; for multi-hull yachts the breadth of one hull at the design waterline [m]

$H$  = the moulded depth of the yacht [m] as defined in Section 2, A.6.

#### 7.6.1.2 Branch bilge pipes

The inside diameter is given by the formula:

$$d_z = 25 + 2,15 \sqrt{\ell (B + H)}$$

$d_z$  = calculated inside diameter [mm] of the branch pipes

$\ell$  = length [m] of the watertight compartment

#### 7.6.1.3 Minimum diameter

The inside diameter of main and branch bilge pipes is not to be less than 50 mm. For yachts with  $L \leq 48$  m, the inside diameter may be reduced to 40 mm.

### 7.6.2 Bilge pumps

The number of bilge pumps is to be evaluated as prescribed for cargo ships.

### 7.6.3 Bilge pumping for various spaces

#### 7.6.3.1 Machinery spaces

On yachts of more than 100 gross tons, the bilges of every machinery space must be capable of being drained as follows:

- through the bilge suctions connected to the main bilge system
- through one direct suction connected to the largest independent bilge pump
- through an emergency bilge suction connected to the independent cooling water pump of the main propulsion plant or through another suitable emergency bilge system

For yachts with a length  $L \leq 48$  m inclusive, the emergency bilge suction need not be provided, if an independent power driven sea water cooling pump or any other suitable pump is not available.

#### 7.6.3.2 Bilge suctions for other spaces

Bilge suction is to be arranged for the shaft tunnel (if applicable), fore and after peaks, cofferdams, pipe tunnels and void spaces as well as chain lockers.

### 7.6.4 Bilge testing

For yachts with a length  $L$  above 48 m all bilge arrangements are to be tested under GL supervision.

### 7.6.5 Equipment for the treatment and storage of bilge water, fuel and oil residues

#### 7.6.5.1 Oily water separating equipment

##### Note

Also for yachts of less than 400 gross tons it is not permitted to discharge oily bilge water as well as fuel and oil residues into the sea<sup>2</sup>. It is therefore recommended to provide also for such yachts equipment for

<sup>2</sup> With regard to the installation on yachts of oily water separators, filter plants, oil collecting tanks, oil discharging lines and a 15 ppm alarm device in the water outlet of oily water separators, compliance is required with the provisions of the International Convention for the Prevention of Pollution from Ships, 1973 (MARPOL) and the Protocol 1978, as applicable.

The GL form F 323 (MP1) is to be submitted for approval, if a IOPP certificate is applied for.

*collecting these liquids and to discharge them to reception facilities.*

### 7.7 Cooling systems

All internal and external cooling systems of any internal combustion engine have to be in compliance with the manufacturer's installation recommendation.

If the manufacturers recommend coolant treatment and checks, the design of the piping system has to be such, that applying of additives and taking of samples is easily possible. All coolant venting lines have to be arranged with upwards slope throughout.

### 7.8 Seawater cooling system, sea chests

For motor yachts of a length  $L \leq 48$  m and all sailing yachts a second sea chest need not be provided.

### 7.9 Clearing sea chest gratings

All sailing yachts need not be provided with a device for sea chest clearing. Motor yachts with an auxiliary system producing compressed air shall be equipped with means for clearing sea chests.

### 7.10 Seawater cooling pumps, diesel engine plants

Yachts for unrestricted service and a single propulsion plant should have a stand-by seawater pump or carry a spare seawater pump on board. If feasible, the same applies to internal coolant circuit water pumps. At least one repair kit per each seawater pump type has to be carried on board.

Yachts for restricted service or with more than one main propulsion system need not have stand-by seawater cooling pumps.

### 7.11 Air, overflow and sounding pipes

Each tank is to be fitted with air pipes, overflow and sounding pipes. The air pipes are in general to be led to above the exposed deck. The height from the deck to the point where the water may have access is to be at least 760 mm on the freeboard deck and 450 mm on a superstructure deck. These heights may be reduced in agreement with GL if the point of water access is suitably arranged.

Suitable closing appliances are to be provided for these pipes. For air pipes of 32 mm in diameter and above automatic closures are to be provided. In yachts for which flooding calculations are to be made, the ends of the air pipes are to be above the damage waterline in the flooded condition. Where they immerse at intermediate stages of flooding, these conditions are to be examined separately.

Sounding pipes are to be extended to directly above the tank bottom. Striking plates have to be provided under the sounding pipes.

### 8. Steering gears, hydraulic control systems

A hydraulic locking alarm shall be provided to indicate failure of single control components.

### 9. Operating instructions, tools, spare parts

#### 9.1 Operating instructions

All necessary operating and maintenance instructions as well as spare parts lists recommended by the manufacturers of machinery and ancillary equipment shall be available on board.

#### 9.2 Tools

Sufficient tools are to be carried to allow for repair or maintenance work to be carried out as described in the operating and maintenance instructions. Scope of maintenance (and subsequently tooling) necessary will be subject to the range of service and the type of the yacht.

#### 9.3 Spare parts

If extended voyages of yachts are intended, it is the operator's responsibility to carry on board additional tools, accessories, consumables and spares in accordance with the recommendations of the engine/component manufacturers and with the foreseeable needs and/or availability conditions during the particular voyage.

### 10. Fire protection and fire extinguishing equipment

This equipment is defined in [Section 3, C](#).

## D. Electrical Installations

### 1. General

For the electrical installations of large yachts no special rules and guidelines are contained in these Rules. The already existing international standards and GL Rules as defined below shall be used, as applicable.

In particular, justified cases deviations from these requirements may be accepted by GL on special request.

### 2. Special requirements for yachts with $L \leq 48$ m

For all types of yachts with a length  $L \leq 48$  m the following International Standard has to be applied:

- International Electrotechnical Commission IEC 60092 – Part 507: "Electrical installations in ships – Pleasure craft".

This standard is valid for unrestricted service and all other ranges of service.

**Note**

*This part of IEC 60092 incorporates and coordinates, as far as possible, existing requirements for electrical installations relevant to pleasure craft as published in other parts of the IEC 60092 series, the publications of ISO technical committee 188 and the IEC 60364 series.*

*The first edition of this standard has been issued 2000-02 and the committee has decided that the contents of publication will remain unchanged until 2005-06.*

**3. Special requirements for yachts with  
L > 48 m**

For all types of yachts with a length  $L > 48$  m the following GL Rules have to be applied:

- Part 1 – Seagoing Ships  
Chapter 3 – Electrical Installations
- Part 1 – Seagoing Ships  
Chapter 4 – Automation

**E. Documents for Approval**

**1. General requirements**

**1.1** All documents have to be submitted to GL in German or English language.

**1.2** The survey of the yacht's construction will be carried out on the basis of approved documents. The drawings must contain all data necessary for assessment and approval. Where deemed necessary, calculations and descriptions of the yacht's elements are to be submitted. Any non-standard symbols used are to be explained in a key list. All documents must show the number of the project and the name of the owner and/or shipyard.

**1.3** Submitted calculations shall contain all necessary information concerning reference documents, literature and other sources.

The calculations have to be compiled in a way which allows to identify and check all steps. Handwritten, easily readable documents are acceptable.

Where appropriate, results of calculations shall be presented in graphic form. A written comment to the main conclusions resulting from the calculations has to be provided.

**1.4** GL reserve the right to demand additional documentation if that submitted is insufficient for an assessment of the ship or essential parts thereof. This may especially be the case for plants and equipment related to new developments and/or which are not tested on board to a sufficient extent.

**1.5** The drawings are to be submitted at least in triplicate, all calculations and supporting documentation in one copy for examination at a sufficiently early date to ensure that they are approved and available to the Surveyor at the beginning of the manufacture of the ship or the installation of important components.

**1.6** Once the documents submitted have been approved by GL they are binding on the execution of the work. Subsequent modifications and extensions require the approval of GL before becoming effective.

**2. Guidance for submission of documents**

**2.1** Upon request the list of required documents for classification will be provided by GL.

**2.2** An excerpt of this list confined to examination of the hull structure regarding issuance of a Hull Construction Certificate is given in the following.

**List of Documents to be submitted for the Examination Scope "Hull Construction Certificate"**

As far as applicable for an individual yacht the following documents have to be submitted:

- **Hull structural drawings**
  - General Arrangement Plan
  - Lines Plan
  - Deck Layout
  - Main Particulars (including  $L_H$ ,  $L_{WL}$ ,  $B$ ,  $B_{WL}$ ,  $H$ ,  $T$ ,  $\Delta$ ,  $v_0$ )
  - Tank Arrangement Plan
  - Specification of Construction Materials
  - Shell Expansion and Specification of Welded Joints for Metal Hulls
  - Hull Lay-up Plan and Secondary Bonding of Structural Members for Composite Hulls
  - Locations and Size of Openings in the Hull Shell
  - Bulkheads (transverse, longitudinal and wash bulkheads, tank boundaries including positions of overflow)
  - Longitudinal Section (longitudinal and transverse hull structure, location of watertight bulkheads, tank boundaries, deck supporting structures)

- Midship Section (longitudinal and transverse hull structure, details of anchoring and mooring equipment)
- Typical Cross Sections of the Aft and Fore End Area
- Bottom Structure (longitudinal and transverse structure, watertight subdivision of double bottom, if applicable)
- Engine Room Structure (including main engine foundation)
- Decks (scantling of deck structures, pillars, location of openings)
- Bulwark Plating and Structure
- Superstructures (plating, structural members and support of superstructures like bulkheads and pillars, openings)
- Propeller Brackets and Shaft Exits, if applicable
- Bow Thruster, if applicable
- Windlass and Chain Stopper Seating (including substructure and details on loads to be transmitted)
- Typical Structural Details
- **Rudder**
  - Steering Arrangement (if applicable waterjet arrangement)
  - Structure of the Rudder Body
  - Rudder Horn and Structural Integration, if applicable
  - Position and Specification of Rudder Bearings
  - Rudder Stock and Material Specification
  - Rudder Bearing Seats
- **Keel of sailing yachts**
  - Bottom Structure in Way of the Ballast Keel Attachment to the Hull
  - Keel Geometry, Weight and Centre of Gravity
  - Keel Root and other Relevant Cross Sections of the Ballast Keel Structure
  - Details of the Keel's Structural Attachment to the Hull
- **Chain plates of sailing yachts**
  - Sail Plan and Size of Standing Rigging
  - Hull Structure in Way of Mast Step and Chain plates
  - Details of all Chain plates including Structural Attachment to the Hull