
CLASS40

BOX RULE 2010

Index

Index	2
Fundamental Rules	3
Chapter 1 – General characteristics	5
100 – General remarks	5
101 – Appendages	6
102 – Rigging	6
103 – Sail area	6
104 – Interior fixtures	7
Chapter 2 – Dimensions	8
200 – Dimensions	8
201 – Measurement trim	8
202 – Hull length (Lh) (EN/ISO 8666 5.2.2)	8
203 – Maximum beam (Bmax) : (EN/ISO 8666 5.2.3)	8
204 – Maximum draft (Tmax) : (EN/ISO 8666 45.4.4.1)	9
205 – Average freeboard (m FB)	9
206 – Displacement	9
207 – Ballast	9
208 – Mast (Highest point)	9
209 – Boom and mainsheet traveller track	10
210 – Bowsprit	10
211 – Spinnaker pole	10
212 – Sails	10
213 – Geometry of the hull	12
214 – Geometry of the deck	12
Chapter 3 – Safety	14
300 – Stability (EN/ISO 12217)	14
301 – Displacement conformity	14
302 – 90° test	15
303 – Watertight bulkheads	15
304 – Combined volume of the deck camber and the coachroof	15
305 – Buoyancy volumes	16
306 – Propulsion	16
307 – Hull marking	16
308 – Safety equipment	16
Chapter 4 – Cost limitation	17
401 – Hull, deck, interiors structure and fittings	17
402 – Stanchions, pulpits and pushpits	17
403 – Ballast	17
404 – Rudders and steering systems, keel fin	17
405 – Mast, boom, spinnaker pole, bowsprit	18
406 – Lateral standing rigging	18
407 – Equipment	18

FUNDAMENTAL RULES

This box-rule applies to monohull yachts with the aim of racing offshore in real time.

A monohull is a boat with a single flotation plane at rest or under sail, whose hull depth in any transversal section shall not decrease towards the centre-line.

The current ISAF (RRS, ERS and OSR) rules apply.

The Class 40 Class Rules for Monohulls are the open type set out in Paragraph C.3.3 of the ERS (Equipment Rules of Sailing), meaning that anything that is not explicitly forbidden, limited or imposed, is permitted.

The Class40 association was formed with the aim of creating a fleet of simple, seaworthy, performance, ocean-racing yachts, and where possible within a limited budget. These Class Rules aim to fulfil this mission, but no text can anticipate the capacity of human intelligence to exploit the meaning of words in a manner not in line with the original aim of these Rules.

For this reason, it is highly recommended that any questions on the interpretation of these Rules which might be contrary to the spirit of the Class be put first to the Executive Committee, to avoid the risk of being considered outside the Rules.

The official language of the class is French.

Class 40 monohulls are destined for offshore competition.

Skippers should note that sailing is a potentially dangerous activity, and that the decision to race is theirs alone, in accordance with Article 4 of the RRS.

The safety of the boat and its crew is the inalienable responsibility of the owner, or his/her skipper, who must ensure that the yacht is in perfect condition, thoroughly seaworthy, and that it is crewed by an experienced crew, who have undergone the appropriate training and are physically capable of dealing with bad weather.

In accordance with article 3 (c) of the RRS and whatever the circumstances of an accident, no legal responsibility can be sought from any of the following parties: ISAF, National Authorities (FFVoile), Class 40, or an official measurer of the present rules.

The class must respect the conditions of the Advertising Code in Category C of the ISAF Regulations (Chapter IV; 20).

Routing is forbidden in competition.

Production Class 40s and prototypes shall share a common ranking.

The results of the 90° test and the weight of boats can be referred to at the class secretariat.

All boats without exception may be the subject of random scrutineering (where a boat does not conform, the measurement expenses shall be paid by the person responsible for that boat).

Any modification having a bearing on the rule shall be brought to the attention of the class measurer.

CHAPTER 1 - GENERAL CHARACTERISTICS

100. GENERAL REMARKS

The boat must comply with all aspects of:

- the 'NF EN ISO 12217 Small Craft- Stability and Buoyancy Assessment and Categorisation - part 2: Sailing boats of hull length greater than or equal to 6m' for design category A, except 6.1.4 b) where the sentence '*for the next less demanding design category*' is replaced by '*for the design category concerned* ' ;
- the 'NF EN ISO 11812 – Small Craft – watertightness requirements of quick draining cockpits' for design category A ;
- as well as the requirements set out in OSR for Category 1, with the exception of chapter 3.09 (cockpit).

In the event of conflict between the OSR and the NF EN ISO 12217 standard, the latter will prevail. These rules are modified as follows:

- ISO 12217-2 :
 - ◆ 6.3.2 "Alternative requirement for categories A & B" does not apply. See §301 of these rules.
- OSR Cat 1:
 - ◆ 3.03.1 b) "ABS certification", does not apply.
 - ◆ 3.04.03 "IMS Stability Index" does not apply.
 - ◆ 3.04.4 "Stability Standards", replace 'can' by 'must'. See §301 of these rules.
 - ◆ 3.08.03 "Companionway" does not apply, replaced by the restrictions noted in the ISO 12217-2 standard: 6.2.2.2
 - ◆ 3.14.3a "Pulpit position", modified, see §402 of these rules.
 - ◆ 3.14.7 "Pushpits/Pulpits, stanchions, guardrails", modified, see §403 of these rules
 - ◆ 3.19.1 "Bunks", modified, see §104 of these rules.
 - ◆ 3.21.1 "Drinking water", does not apply.
 - ◆ 4.01.2 "Hull marking". Modified, see §307 of these rules
 - ◆ 4.26.4 f "Working jib". Modified, see §212.04 of these rules.
 - ◆ Appendix H "Organisation of Ocean Races". Does not apply.

- RRS:
 - ◆ § 50.4 "Foresails", modified. See §212.03.01 of these rules.
 - ◆ § 51. "Moveable ballast". Does not apply.

101. APPENDAGES

The appendages are limited to a single fixed keel when sailing and a maximum of two moveable appendages.

Note: daggerboards are forbidden.

102. RIGGING

Rotating or canting masts are not allowed.

Stays, backstays, runners and shrouds (permanent and temporary) must be fixed to the chainplates situated inside the natural intersection of the hull and deck extension.

A tolerance of 20 mm is acceptable for attached chainplates.

Deck spreaders are forbidden.

103. SAIL AREA

The number of sails on board is limited to 8, including the storm jib and the storm tryail. Solely the 8 sails on board at the start may be used during a race.

All materials other than Nylon are prohibited in the manufacture of spinnakers (any headsail with a mid-girth greater than 0.75 x the foot is deemed to be a spinnaker).

All materials other than woven or laminated polyester materials are forbidden in the manufacture of other sails, with the exception of two sails, which can be made from any material.

The mainsail must bear the Class 40 insignia, which must be obtained exclusively from the Class 40.

Carbon battens and carbon batten pockets are forbidden.

104. INTERIOR FIXTURES

In addition to OSR rules Cat 1, there must be on board:

- ◆ 1 permanently installed chart table ;
- ◆ A minimum of 4 fixed berths must be installed (articulating berths not included) and measure a minimum of 1.8m x 0.5m in size ;
- ◆ A minimum of two roof portlights providing lateral visibility (of clear glass) measuring a minimum combined area of 0.2m² , not including the companionway hatch ;
- ◆ WC fixed and usable ;
- ◆ Fixed water tanks containing a combined minimum of 40l. These tanks shall be situated at less than 500 mm from the centreline of the boat.
- ◆ A limited number of additional water containers, specified for each race, may be carried. The quantity in litres of drinking water or other drinks to be onboard for offshore races is calculated as follows:

-for boats without a watermaker:

Number of miles in the race/180 x number of crew x 3

-for boats with a permanently installed watermaker:

Number of miles in the race/180 x number of crew x 1.5

The water shall be in fixed tanks. If these tanks do not have enough capacity, containers of a maximum of 5 litres capacity, with the exception of 2 x 20 litre containers will be allowed. No additional container is permitted, with the exception of the sealed emergency water container. The emergency water is not included in the quantity of water required on board.

CHAPTER 2 – DIMENSIONS

200. DIMENSIONS

The dimensions that must be measured in compliance with the NF EN ISO 8666 standard are indicated by the name EN/ISO 8666 followed by the relevant chapter.

201. MEASUREMENT TRIM

Measurement trim for measuring purposes is the Light Craft Condition LCC (in conformity with 6.3 of the EN ISO 8666 standard and 3.5.1 of the EN ISO 12217-2 standard) excluding the mooring gear (anchor, chain and line) and the loose external equipment (fenders, warps, mooring lines), sails, batteries (except for an engine start battery measuring a maximum of 60 Amp) and the liferaft. Fixed internal fittings such as fridges, watermakers, plumbing or other equipment which are included when the boat is weighed, shall not be removable and shall be listed on the measurement certificate, including their location. The same applies to all other fixed navigational equipment, such as autopilots, computers etc...

202. HULL LENGTH (L_h): (EN/ISO 8666 5.2.2)

The hull length shall not exceed 12.19 m.

Reminder : This measurement does not include rudders and their fittings, bobstay fittings, without devices designed to lengthen the waterline, nor pulpits and pushpits, solar panels and wind generators, nor the bowsprit, if it is removable (grandfather clause for fixed bowsprits of boats launched before 31/01/07).

In the case of transom-hung rudders, no part of the rudder system shall be wider than 150 mm, except for the top of the rudder boxes and the top of the rudders.

203. MAXIMUM BEAM (B_{max}): (EN/ISO 8666 5.3.2)

The maximum beam must not exceed 4.50m.

204. MAXIMUM DRAFT (T_{max}): (EN/ISO 8666 45.4.4.1)

The maximum draft must not exceed 3.00m in measurement trim.

205. AVERAGE FREEBOARD (m FB)

The average freeboard must not be lower than 1.10m in measurement trim.

The average freeboard is obtained by dividing the vertical projected surface of the topsides (as far as the sheer line, such as is defined in the EN/ISO 8666) by the hull length (Lh).

206. DISPLACEMENT

The boat weight must not be lower than 4500 kg in loaded condition as defined in 201.

Internal lead corrector weights are forbidden (except corrector weights placed at the boat's extremities upon decision of the measurement committee).

207. BALLAST

207.01 - Solid ballast :

Reminder : See OSR 2.03.2a

207.02 - Liquid ballast :

The maximum volume of transferable liquid ballast is 1500 l, symmetrically distributed (750 l on each side). The ballast tanks are fixed.

208. MAST (Highest point)

A band measuring a minimum of 25mm in width in a contrasting colour must be affixed around the top of the mast. The lower part of this band will be situated at a height of 19 m above the water surface in measurement trim. No point of any set sail may be situated above the lower part of this band.

In the absence of such a band, the high point will be the highest point of the mast tube.

209. BOOM AND MAINSHEET TRAVELLER TRACK

The aftermost part of the boom must be at least 80cm forward of the aftermost point used to determine the Lh, whatever the trim of the mainsail.

Any track with a curve(s) where the radius is less than 4.5 metres is forbidden.

No part of the mainsheet traveller track can be further than 1.25 m from the rear of the boat (dispensation for boats launched prior to 31/01/2007).

210. BOWSPRIT

Once in position, the forward extremity of the bowsprit must not exceed the forward-most point used to determine the Lh by more than 2.0 m.

The bowsprit must be removable (in line with EN/ ISO norm 8666 §5.2.2 for measuring length Lh). (Dispensation for boats launched prior to 31/01/07).

211. SPINNAKER POLE

Once in position, the forward extremity of the pole must not exceed the forward-most point used to determine the Lh by more than 2.0 m.

212. SAILS

The surface area, mainsail + maximum genoa/jib (see definition in 212.03.01), must not exceed 115 m².

212.01 - Reminders and general points

212.01.01 - The ERS Rules and dispositions in Appendix G of the ISAF RRS rules (size and positioning of the sail numbers) applies.

212.01.02 - The sail numbers are distributed by the Class 40 in chronological order of requests.

212.02 - Mainsail measurement

212.02.01 - The sail area of the mainsail (SMGV/MMSS) is calculated by the formula:

$$\text{SMGV/MMSS} = \frac{\text{Luff} * (\text{HB} + 2 * \text{MGT} + 3 * \text{MGU} + 4 * \text{MGM} + 4 * \text{MGL} + 2 * \text{sail foot})}{16}$$

212.02.02 - Height

Luff (ERS G.7.3)

212.02.03 - Girth

- ◆ HB is the girth of the mainsail head (ERS G.7.8)
- ◆ MGT, is the upper girth (ERS G.7.7).

Definition: The upper point of the leech is the point on the leech that is equidistant from the halyard point and the three quarter way point.

- ◆ MGU is the girth at the three quarter way point (ERS G.7.6).
- ◆ MGM is the girth at the middle distance point (ERS G.7.5).
- ◆ MGL is the girth at the quarter distance point (ERS G.7.4).

212.02.04 - Foot

Foot (ERS G.7.1).

212.02.05 - The distance between the mid-foot point and the equidistant point between the tack point and the clew point shall not exceed 0.15 m. (ERS G.5.6.a)

212.03 - Measurement of the genoa/jibs

212.03.01 - A genoa/jib is a triangular shaped foresail hoisted along a stay, even if this stay isn't the main stay.

A genoa/jib is a foresail whose width in the middle (ERS G.7.5) is less than or equal to 50% of the luff perpendicular (ERS G.7.11).

212.03.02 - LP is the luff perpendicular (ERS G.7.11).

JL is the luff length (ERS G.7.3).

212.03.03 - The surface area of the jib (SMF) is given by:

$$SMF = 0.5 \times JL \times LP$$

The distance between the mid-foot point and the equidistant point between the tack point and the clew point shall not exceed 0.1 m. (ERS G.5.6.a)

212.04 - Trisail, working jib and storm jib

Refer to 4.26 of the OSR Cat 1 modified as follows:

A reef is permitted on the working jib.

The trisail must be made from a material weighing a minimum of 9oz.

212.05 - Certificate of sail conformity

The sail manufacturer shall sign a document (supplied by the Class 40) certifying the sail materials, measurements and surface area of the mainsail and each genoa/jib, as well as their total conformity with the specifications in the RRS and ERS.

213 – GEOMETRY OF THE HULL

From 150mm under the sheer, any point vertically below must be closer to the centreline than the point immediately above, no matter which section.

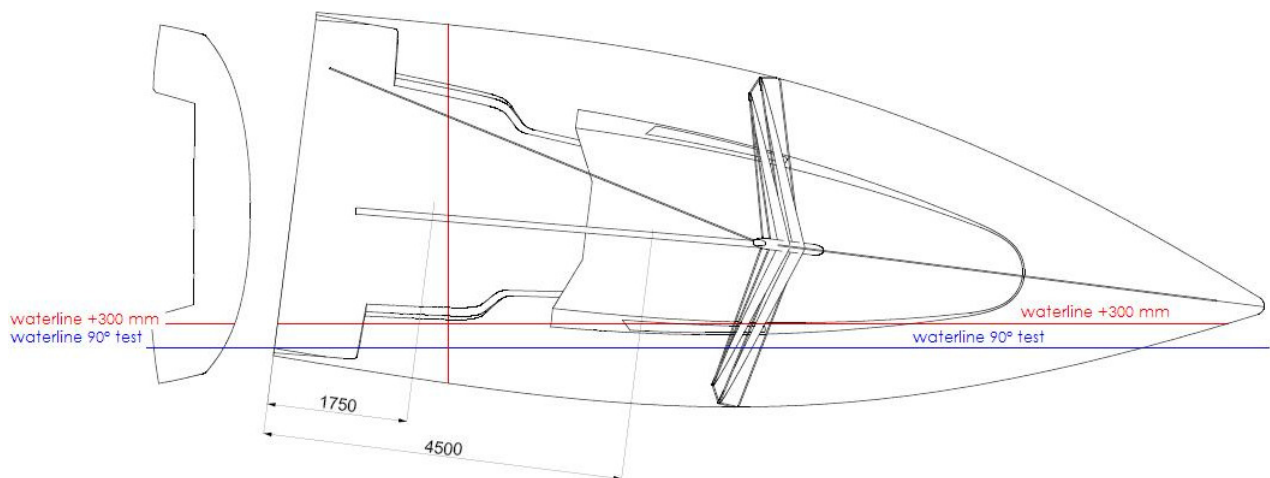
214 – GEOMETRY OF THE DECK

The cockpit can be any width between the aft-most point used to determine Lh and 1.75 metres forwards of this point.

Between 1.75 m and 4.50 m forward of the aft-most point used to determine Lh, no part of the deck or cockpit surface below the waterline + 300 mm, when the boat is heeled to 90°, can be lower than the sheer of the same section when the boat is floating upright.

Between 4.50 m forward of the aft-most point used to determine Lh and the bow, no part of the deck or coachroof can be lower than the sheer of the same section, with the exception of an anchor locker. The aft-most point of the anchor locker shall be less than 1.50 metres from the bow, and its total volume less than 0.4m³.

Conformity of deck geometry will be checked during the 90° test.



CHAPTER 3 - SAFETY

300. STABILITY: (EN/ISO 12217)

Reminder :

The boat must conform with all aspects of:

- the "NF EN ISO 12217 Small Craft - Stability and Buoyancy Assessment and Categorisation- part 2: Sailing boats with a hull length greater or equal to 6 m" for design category A A, except 6.1.4 b) where the sentence « *for the next less demanding design category* » is replaced by « *for the design category concerned* »,
- the « *NF EN ISO 11812 – Small Craft – watertightness requirements of quick draining cockpits*» for design category A.

A Class40 accredited measurer must have verified the load measured during a Class40 90° test. The written report (or any other document) shall then be submitted to the class. This document shall prove that the stability of the vessel concerned or a specimen of that series, has been verified, and shall state the results obtained for each of the requirements of the standard

The weigh-in shall validate the displacement (see chapter 301).

The validation of the height of the centre of gravity is based on the 90° test defined in chapter 302. Within the framework of this control, the measurer will note down the following measurements on his report: Lh, Bmax, Tmax, average freeboard, top point of the mast, following the procedures file supplied by the Class 40.

301. DISPLACEMENT CONFORMITY

The weigh-in of a boat in measurement trim must have been carried out in the presence of a Class 40 accredited measurer, using scales approved by the Class 40.

This person will supply the class with a report of the weigh-in.

302. 90° TEST

This test is aimed at proving that the boat is capable of righting itself from the broached position with empty ballast tanks.

It must be done in the presence of a Class 40 accredited measurer.

When heeled at 90 degrees (on both sides, if considered necessary) the boat in measurement trim (see §201) is kept in this position with the aid of a strop passed around the mast at the level of the band at the top point of the mast, that is 19m (see 208 of the present rules). The load exerted on the strop must be a minimum of 235 kgf and a maximum of 320 kgf.

If the mast band is placed at under 19m of elevation, the load on the strop must satisfy the same maximum righting moment. (The designer must supply the calculations)

The boat is considered to be heeled at 90 degrees when the aftermost points of the sheer line are situated on the same vertical plane.

A certificate signed by the designer specifying the least favourable ballast configuration must be supplied prior to the test being performed.

303. WATERTIGHT BULKHEADS

A watertight collision bulkhead must be installed between 10% and 15% of LWL, aft of the forward-most Lh point, and aft of the forward-most point of the waterline. A watertight bulkhead must be installed forward of the rudder stock(s) and a minimum of 1m forward of the aft-most point of Lh.

A system of watertight hatches, with a minimum opening of 0.18 m², shall enable evacuation via the back of the boat when inverted. All boats shall conform to this rule by the 1st of September 2010 in order to participate in Category 1 races.

304. COMBINED VOLUME OF THE DECK CAMBER AND THE COACHROOF

The minimum volume, measured from the plan passing via the sheer lines (as defined in EN/ISO 8666), must be at least equal to the boat's maximum beam expressed in m³. A coachroof is mandatory.

A certificate signed by the designer, specifying this volume, must be supplied.

305. BUOYANCY VOLUMES

A minimum of 3 m³ of closed-cell foam is required. This volume, divided into a minimum of 4 compartments, must be distributed symmetrically around the boat's centre of gravity. The volume of the sandwich hull lining may be included in this volume of foam (but not the volume of the deck lining, nor that of the bulkheads).

The skipper must supply a file showing the detail and the distribution of the buoyancy volume, signed by the designer, the builder and the skipper.

306. PROPULSION

An engine, with a minimum power of 20 kW, with fixed transmission with sail drive or propeller shaft, and a propeller, situated beneath the centreline of the hull, must be installed.

There must be a minimum of 40 mm between the propeller when open, and the hull. The propeller blades may be folding or feathering.

The propeller when open must have a minimum diameter of 360 mm.

The autonomy of the propulsion system shall be equivalent to that provided by a 40 litre tank for a diesel engine, no matter what the power source.

307. HULL MARKING

The sail number (without its national letters) shall be inscribed once on the deck (minimum height of number to be 450 mm) and once on each side of the hull (minimum height of number to be 650 mm).

308. SAFETY EQUIPMENT

Mandatory ground tackle, including a 16 kg anchor, 25 m of chain of a minimum diameter of 8 mm, and 30m of nylon warp of a minimum diameter of 14 mm shall be on board. This 'safety' ground tackle must be permanently installed in the boat in a location specifically dedicated to it. It shall be sealed.

Reminder: The onboard equipment must conform with the OSR rules for the relevant race category, as modified by the present rules.

CHAPTER 4 - COST LIMITATION

The use of titanium is forbidden.

401. HULL, DECK, INTERIOR STRUCTURE AND FITTINGS

Materials forbidden in the construction of the hull, deck, the interior structure and fittings are:

- ◆ Fibres : Carbon fibre
- ◆ Aramid fibre
- ◆ Any glass fibre where the maximum tensile strength is in excess of 3800 Mpa
- ◆ Sandwich cores : honeycomb cores.

The use of resin pre-preg reinforcements in the construction of the hull, the deck, the interior structure and fittings is forbidden.

402. STANCHIONS, PULPITS AND PUSHPITS

All materials other than steel are forbidden.

OSR 3.14.3a): delete the term "*forward of the headstay*".

403. BALLAST

Materials denser than lead are forbidden.

404. RUDDERS AND STEERING SYSTEMS, KEEL FIN

Forbidden materials are:

- ◆ Carbon fibre
- ◆ Aramid fibre
- ◆ Any glass fibre where the maximum tensile strength is in excess of 3800 MPa
- ◆ Honeycomb cores.

The 3D milling of metal keel fins and rudder stocks is forbidden.

405. MAST, BOOM, SPINNAKER POLE, BOWSPRIT

Forbidden materials are:

- ◆ Carbon fibre with a modulus greater than 245 GPa (certification from the manufacturer obligatory).

406. LATERAL STANDING RIGGING

All materials other than steel are forbidden.

407. EQUIPMENT

Carbon winches are forbidden. However, it is accepted that certain non-structural parts of winches can be in carbon, on condition that these are standard products and are featured in suppliers' catalogues.

Coffee grinders are forbidden.

Batteries shall be exclusively lead (acid or gel)

Halyard locks are forbidden. The definition of a halyard lock is any mechanical system designed to hold sails aloft by taking the load off the halyard. Any system for keeping sails hoisted shall not be situated higher on the mast than the height of a person.