Beta rating text

Class IMER

(International Monohull Ecological and Responsible)

This version of the rules is set to evolve. The many architects of the competition will be able to express their questions to the class. The final version will be online after the competition jury.

TABLE DES MATIERES

CHAPITRE 1 – DIMENSIONS

100 - DIMENSIONS

A Class IMER is a monohull, a boat with a single waterline regardless of the heel between 0 and 95°

102 – HULL LENGTH

The hull **length** must not exceed **9.00 m**

This measurement does not include the following elements:

- Rudders and their fittings
- Pushpits
- Escape hatch
- Under-beard fittings
- Energy production equipment

103 – MAXIMUM BEAM

The **maximum beam** must not exceed **3.40 m.**

104 – DRAFT

The **draft** must not exceed **2.0 m**

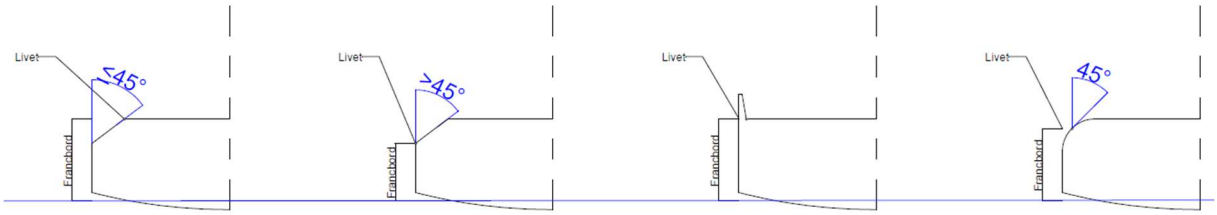
105 – AIR DRAFT

The air draft must not exceed **14 m**. The maximum air draft point of the boat is defined by the exit of the highest halyard.

106 – FREEBOARD

The average freeboard at the sheer must not be less than **1 m**.

The sheer is defined as the intersection of the hull and the deck according to the diagrams below. In case of doubt, there is no notion of extension between the hull and the deck. Surfaces at more than 45◦45◦ from the vertical are part of the deck; those at less than 45◦45◦ are part of the hull.



107 – VOLUME COMBINE DE ROUF ET DE BOUGE DE PONT

The minimum volume of the deckhouse and cabin must be calculated as follows:

V = **Bmax** + (0,5 . **Bav**)

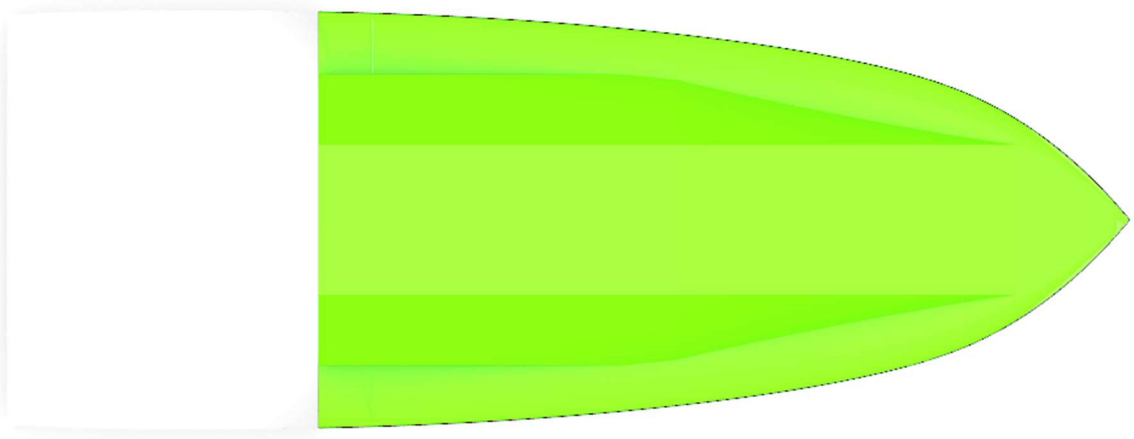
V in m3

Bmax (m) : Maximum width of the boat

Bav (m) : Width at 1500 mm from the bow

This is a minimum volume.

The presence of a cabin is mandatory. The volume of the deckhouse is not included in this calculation. The area concerned is in green below, from the rearmost edge of the cabin.



CHAPITRE 2 – CONSTRUCTION

200 – MOLD

3D machining prohibited except for the bow mold. The length limit for the bow mold is up to the collision bulkhead

2D panel machining allowed.

➔ Machining details such as chamfers at the ends of panels and grooves on panels are allowed.

➔ The environmental impact of the bow mold must be considered.

201 – COLLISION BULKHEAD

A watertight bulkhead must be placed at the front of the boat. A watertight hatch must be grafted onto it. The collision bulkhead must prevent the boat from being flooded in case of a bow impact.

Bulkhead located between 1 m and 0.5 m from the bow.

202 – COCKPIT FLOOR

The cockpit floor must be at least 200 mm from the waterline.

In case of a closed cockpit, provide drainage on both port and starboard sides.

203 – INTERIOR DIMENSIONS

There must be a sleeping area allowing a person of 1.90 m to lie down.

A minimum headroom of 1.80 m.

The surface obtained by the intersection of the keel line offset by 1800 mm on the "Z" axis with the deckhouse must be in one piece. This surface must be at least 1.5 m21.5 m2.

204 - APPENDAGES

Foils are prohibited. To avoid any ambiguity, any mobile appendages that modify the boat's RM are prohibited.

Centerboard authorized.

The joint plane of the centerboard is a plane.

Each well must be made watertight.

206 – MANUFACTURING PROCESS

Preg prohibited

Autoclave prohibited

207 – CONSTRUCTION DETAILS

Bolting must be flush.

Each through-hole must be isolated from water by a resin insert.

CHAPITRE 3 - RIGGING

300 – MAST

For a through-mast, the lower part of the mast must be watertight from the mast foot to the first halyard exit.

Shrouds, stays, backstays, and runners must be attached inside the hull.

301 – BOOM

The boom in the horizontal position must never extend beyond the vertical of the transom.

302 – BOWSPRIT AND OUTRIGGERS

The bowsprit must never extend beyond the bow in its retracted position.

Outriggers prohibited.

CHAPITRE 4 - MATERIALS

400 – GÉNÉRAL

The concept of **index** is key to understanding the calculation method. Each material has its own index.

Contact the class to add new materials.

Dry Fiber				
Material	Weight	Surface		Index
Carbone HR	300	1	m²	1,64
Carbone IM	300	1	m²	1.89
Carbone HM	300	1	m²	2.33
Verre E	300	1	m²	0,73
Lin	300	1	m²	0.42

Resin			
Material	Quantity		Index
Bio Epoxy	1	kg	4.46
Epoxy	1	kg	5.15
Vinylester	1	kg	5.77
Polyester	1	kg	6.86

Core			
Material	Quantity		Index
Bois Résineux Europe	1	kg	0,05
Bois Feuillus Europe	1	kg	0,05
Balsa	1	kg	0,06
Contreplaqué	1	kg	0,11
Corecell	1	kg	5,97
PVC	1	kg	4,21
Rohacell	1	kg	4,45

Métals			
Material	Quantity		Index
Aluminium	1	kg	3.8

The total sum of indices must not **exceed 880** for the entire Hull + Deck + Cabin + Structure + Rigging + Deckhouse + bow mold.

Stratification repairs for elements to be grafted must be taken into account.

The class reserves the right to modify the index threshold. Not included:

- Sails
- One-design equipment

401 – RESTRICTIONS

- Titanium prohibited
- Any material heavier than lead is prohibited
- Dry composite weight must not be less than 300 g/m²

402 - RIGGING

if carbon mast → **use index 90**

If aluminum mast → **use index 30**

If carbon boom → **use index 30**

If aluminum boom → **use index 10**

If carbon bowsprit → **use index 15**

If aluminum bowsprit → **use index 5**

Stainless steel for shrouds / stays / backstays

CHAPITRE 5 – SAFETY

500 – STABILITY

At large angles, with the highest halyard exit point above the water level, the boat must present a positive righting moment, with a load of at least **120 kg** and at most **150 kg**, positioned at the exit point of the highest halyard in the worst configuration.

501 – BALLAST

Ballast prohibited

502 – HATCH

An escape hatch must be installed in the transom above the waterline. It must allow the passage of safety equipment and crew members.

No element should prevent access from inside or outside.

It must be equipped with a closing system from both inside and outside

503 – STABILITY VOLUME

A minimum of 4 m^3 of closed-cell foam must be installed in the boat. This volume is distributed in 4 zones and symmetrically with respect to the longitudinal axis of the boat.

504 – LIFELINES

Only stainless steel lifelines with a minimum diameter of 4 mm are allowed. They must withstand a pull of 1500 kg at each attachment point. The attachment points can be made of textile. Each attachment point must not exceed 100 mm.

The protective covering of the lifelines must allow visual inspection of the wear condition of the entire lifeline.

The height between the upper lifeline and the deck must be at least 80 cm.

The lifelines must be securely attached to the stanchions and stop at the pushpits.

505 – STANCHIONS AND PUSHPITS

The boat must have a minimum of 3 stanchions per side, one forward pushpit, and two aft pushpits. The lifelines must be permanently supported at intervals of no more than 2.2 m.

The stanchions and pushpits must be bolted through the deck in a previously densified area.

Each pushpit must have at least 3 attachment points.

Each stanchion must have 1 attachment point and 1 support leg.

The stanchions and pushpits must be made of stainless steel.

506 – MOTORISATION

Fixed thermal engine in the boat with sufficient power for propulsion.

507 – DESIGN CATEGORY

The boat must comply with ISO 12215-5 standard for design category B.

508 – LIFELINES

The boat must be equipped with textile lifelines on each side of the boat. Each line is independent and must be fixed to a dedicated fixed point.

The attachments must withstand a pull of 1500 kg at each point.

It is imperative that the skipper can attach their harness without leaving the helm.

The skipper must be able to attach to another lifeline without detaching from the first, while remaining safe.

509 – BAILING

Each boat must be equipped with two fixed-arm bailing pumps, one operable from inside and the other from outside. The removable handles of these pumps must be fixed in the immediate vicinity of each one.

These two pumps must be operable with all deck or companionway panels closed and ensure a minimum flow of 11 per stroke.

510 – IDENTIFICATION

The boat number is assigned for life by Class IMER. This number is clearly marked on each side of the hull, within the first 25% of the hull length, as well as on the deck.

The dimensions of the characters of these numbers will be 50 cm high and in solid lines with a minimum thickness of 10 cm. The color of these numbers must contrast with that of the hull and be as legible as possible. The number on the deck will be pink, red, or orange

511 – OPENINGS IN THE HULL AND DECK

Companionway panels must be watertight.

They are equipped with a single closing system acting from both inside and outside.

Hatches or opening panels with a surface area greater than 0.071 m must open outward. The companionway must be protected by a coaming at least 150 mm high.

CHAPITRE 6 – ONE DESIGN

600 – ONE DESIGN ELÉMENTS

To facilitate the development of Class IMER, certain elements will be one-design.

- Keel sail
- Keel attachment method

- Rudders
- Rudder system

These elements must be ordered from Class IMER. These elements are not included in the index calculation.

CHAPITRE 7 – DOCUMENTS TO BE PROVIDED

It is now mandatory to provide proof of the materials used to build the boat. To control the boat's index, a Bill of Materials must be provided.

Example below

Fibers							
Matéral	Fiber Type	Quantity		Resin	Quantity		Manufacturing Method
Carbon HR	Equi 300	45,3	m²	Bio Epoxy	13	kg	Vacuum contact
Carbon IM	UD 300	8,4	m²	Epoxy	3	kg	Infusion
E glass	UD 600	25,1	m²	Polyester	15	kg	Contact
Flax	Bibiais 300	10,2	m²	Bio Epoxy	3	kg	Vacuum contact
Jute	Equi 300	5,8	m²	Bio Epoxy	2	kg	infusion

Matéral	Thickness		Mass		Surface	
Pine	15	mm	75,9	kg	80	m²
Pine	20	mm	65,3	kg	70	m²
Balsa	20	mm	45,2	kg	120	m²
Plywood	18	mm	50,7	kg	50	m²
Corecell M80	20	mm	28,5	kg	70	m²

701 – MATERIALS CONTROL

The class will inspect new constructions during verification in the shipyards.

702 – RATING SESSION

Each competitor must inform Class IMER of the session date and make an appointment for each one.

All boats already rated but modified on control points must be presented at a rating session.

The presence of the skipper and a crew member is mandatory to assist the measurer.

Boat configuration for the rating test:

The boat must be completely empty except:

Hardware in place, fixed to the boat

The bailing system

Electrical recharging means

Entire lifelines / pushpits / stanchions

Inspection hatches

Liferaft

Complete steering system

Rudders in the lowered position

The boom must be held at its end by the mainsail halyard

Halyards

Backstays and runners, as well as their tackles, taut

Mainsheet in place under the boom

All panels open

CHAPITRE 8 - LIMITATION DES COUTS

To control the sales costs of the boat:

- The ex-factory sales price excluding tax of the boat must be between 95 000€ and 135 000€
- Maximum electronics cost : 10 000€
- Maximum hardware cost : 10 000€

CHAPITRE 9 – SAILS

The number of sails is limited to 5, including a storm jib. The storm jib, brightly colored, with a minimum weight of 340 g/m^3, must be able to be hoisted and reduced to 2.5 m2 by a reefing band.

The boat number must be marked on each side of the mainsail and headsails.

The sails must not be set above the highest halyard exit point.

The mainsail must at least bear the nationality letters as well as the Class IMER logo.

The size of the numbers and letters:

- Height of numbers and letters: 300 mm

- Space between letters or numbers: 60 mm

CHAPITRE 10 – SAILING PROGRAM

100 – PROGRAM SUMMARY

The championship lasts one year.

- Championship according to IRC rules, then main event Tour of Europe

101 – TEAM CHAMIONSHIP

Explanation of the main event course.

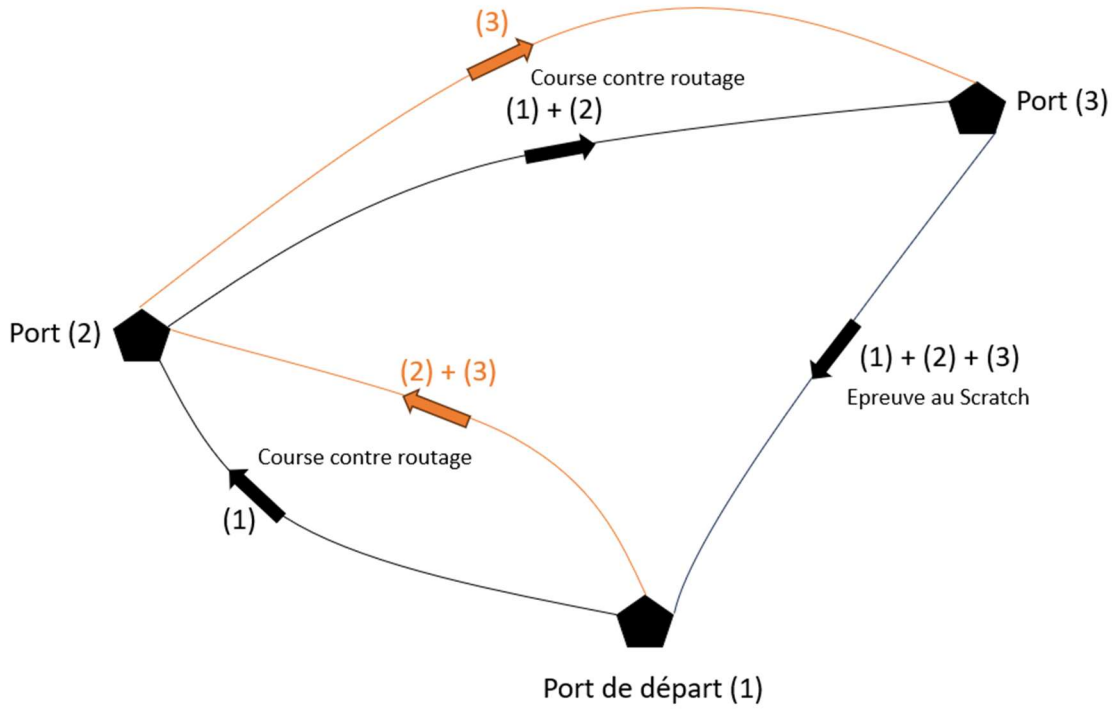


Figure 1 : Exemple de parcours

Crews can take the start in the starting port they want.

1st stage: Departure from the starting port (1) with competitors from port (1) heading towards port (2).

2nd stage: Departure from port (2) heading towards port (3). Competitors from port (2) are added here, totaling 1+21+2.

3rd stage: Departure from port (3) heading towards port (1). Competitors from port (3) are added here, totaling 1+2+31+2+3.

4th stage: Stop for competitors from port (1) who have finished their tour. Competitors (2) + (3) continue.

5th stage: Stop for competitors from port (2) who have finished their tour. Competitors (3) continue to finish in their starting port.

The other races of the championship will be calculated on scratch, as usual.

- Championship
- Queen's race

Il y aura deux classements. Celui du championnat Français et celui de l'épreuve Reine

102 – BUILDER'S CHAMPIONSHIP

A minimum of 3 races must be completed to be part of this ranking.

The ranking will be calculated based on the average cumulative points of the teams.

103 - CREW

Races will be sailed solo or double-handed.

To participate in the main event:

- Solo sailors must have a minimum of 600 nautical miles solo on a Class IMER boat or another class.
- Crew sailors must have a minimum of 600 nautical miles solo or 800 nautical miles crew on a Class IMER boat or another class.

104 – INTÉGRATION INTO OFFSHORE RACING

Class IMER aims to help women who want to integrate into offshore racing. The assistance offered by the class is valid for two seasons. Beyond that, Class IMER will consider that integration into offshore racing has been successful and will no longer offer assistance.

Assistance:

- Free registration for Class IMER
- Priority access to rental boats from Class IMER

105 – CLASSIFICATION

Deux classements :

- Solo
- Crew, maximum 4 on the boat

It is possible to make crew changes at the stops.

The main event started solo/double-handed must be finished with the same number of crew members.

Point Calculation :

For stage 3. Standard race, the first boat wins the most points. This stage counts double. For stages 1/2/4/51/2/4/5. The polar diagram communicated in this rating text allows routing before each stage. The routing time is communicated before

each start. To get the maximum points, you must have a time equal to or less than the routing time. Points will be decreasing based on your course time.

Point Calculation :

Maximum points : 10pts

Calculation formula : $$Points = \frac{Routing\ Time}{Your\ time} * 10$$

➔ The winner of the main event will be the one who has accumulated the most points.

Naming for the ranking::

Boat Number - Team Name – Builder

Ranking for the scratch stage

Ranking	Points
1	20
2	18
3	16
4	14
5	12
6	10
7	8
8	6
9	4
10	2

106 – POLAR

WA\TWS	0	4	8	12	16	20	25	30
0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
30	0,0	0,8	2,0	2,8	3,0	3,2	3,0	2,7
40	0,0	1,0	2,4	3,4	3,7	3,9	3,6	3,3
45	0,0	1,5	3,4	3,6	5,1	5,5	5,5	4,2
50	0,0	2,2	4,4	5,3	6,2	6,5	6,5	5,9
55	0,0	2,5	4,8	5,9	6,5	6,8	6,9	6,6
60	0,0	2,9	5,3	6,4	7,0	7,2	7,3	7,3
65	0,0	3,1	5,5	6,8	7,3	7,5	7,7	7,9
70	0,0	3,2	5,7	7,1	7,6	7,9	8,1	8,4
75	0,0	3,2	5,7	7,3	7,9	8,3	8,6	8,9
80	0,0	3,3	5,8	7,5	8,2	8,6	9,0	9,3
85	0,0	3,3	5,8	7,6	8,4	8,9	9,3	9,7
90	0,0	3,3	5,9	7,7	8,5	9,1	9,7	10,1
95	0,0	3,3	5,9	7,7	8,7	9,3	10,0	10,4
100	0,0	3,4	5,9	7,8	9,0	9,5	10,2	10,7
105	0,0	3,3	6,0	7,8	9,1	9,8	10,5	11,0
110	0,0	3,3	5,9	7,9	9,3	10,2	10,7	11,4
115	0,0	3,3	5,9	7,8	9,4	10,5	11,0	11,6
120	0,0	3,2	5,8	7,7	9,4	10,7	11,4	11,8
125	0,0	3,2	5,8	7,6	9,5	10,8	11,6	11,9
130	0,0	3,0	5,6	7,5	9,5	10,8	11,6	12,0
135	0,0	2,8	5,5	7,3	9,3	10,7	11,5	12,1
140	0,0	2,3	5,1	7,0	9,0	10,3	11,2	12,0
145	0,0	1,9	4,7	6,7	8,5	10,0	10,8	11,7
150	0,0	3,4	5,9	7,8	9,0	9,5	10,2	10,7
160	0,0	3,3	6,0	7,8	9,1	9,8	10,5	11,0
170	0,0	3,3	5,9	7,9	9,3	10,2	10,7	11,4
180	0,0	3,3	5,9	7,8	9,4	10,5	11,0	11,6

This polar is used for calculating routings on the Queen's Race. It does not represent the polar of a boat in the IMER Class. This polar may evolve.