

Some of the definitions in the Recreational Craft Directive and the ISO standards are a bit confusing, hereby a list of the most common mistakes:

1.Craft Identification Number ISO 10087:2006

Previously called Hull Identification Number HIN it gave some trouble for craft with more than one hull, it was thus renamed Craft Identification Number. To make things even more confusing in the new directive it will be called Watercraft Identification Number WIN.

The most confusing part of it is the model year, the model year does not mean the year in which the model was designed or build but rather the year in which the model is *intended* to be placed on the market. We can assume that a craft that was build e.g in October 2014 is only *intended* to be placed on the market in 2015 while a model build in January 2014 is *intended* to be placed on the market in that same year.

Hereby 2 examples BE-CBBPM481A414 and BE-CBBPM482J415 so the country issuing the manufacturer code (thus not necessarily the country where the boat is build is Belgium BE the we have an hyphen (do not forget this) followed, without spacing, the manufacturer code CBB this code is unique and valid for all the CIN made by the same company. PM481 consist of 5 letters and/or digit and is the serial number as chosen by the manufacturer. A stands for the production month whereby A is January, B is February etc...4 is the year of manufacture and finally 14 or 15 is the model year where the product is *intended* to be placed on the market.

*For more complex project year and month of manufacture are not clearly define as at which stage of construction that should be.

2. Confusion between Maximum Load for stability calculations and Maximum Load on builder's plate. ISO 14946:2001 and ISO 14945:2004

The main difference is that on the builder's plate water, fuel and other liquids are not included. This is to avoid that user might bring onboard a maximum load without taking into consideration that the tanks are already full and by doing so creating a potential danger of overloading the craft.

The term "maximum load" is to be understood as the "manufacturer's recommended maximum load". This shall not exceed the total load that may be added to the light craft mass in accordance with ISO 8666 without exceeding the requirements for stability, freeboard, flotation in accordance with ISO 12217-1, ISO 12217-2 and ISO 12217-3, and seating requirements and shall take into account the boat design category. As a minimum it shall take account of the mass of the following:

1. the number of persons at 75 kg each according to clause 4. Where children are carried as part of the crew the maximum number of persons may be exceeded provided that each child's mass does not surpass a limit of 37,5 kg and the total persons mass is not exceeded;
2. basic equipment of $(L_H - 2,5)^2$, but not less than 10 kg;
3. stores and cargo (if any), dry provisions, consumable liquids [not covered by d) or e)], and miscellaneous equipment not included in the light craft mass or in b);

4. consumable liquids (fresh water, fuel) in portable tanks filled to the maximum capacity;
5. consumable liquids (fresh water, fuel) in permanently installed tanks filled to the maximum capacity;
6. a liferaft or dinghy when intended to be carried.

The following information, required under the Recreational Craft Directive (RCD) 94/25/EC, shall be displayed on each builder's plate. See Annex A

1. Manufacturer's name.
2. Boat design category/categories (if appropriate).
3. Manufacturer's recommended maximum load according to ISO 14946, **excluding** the mass of the contents of fixed fuel and water tanks when full, with the person symbol and the suitcase symbol (see example in A.2).
4. For craft which are powered by outboard engine(s) the mass of the engine(s) shall be included, with the outboard engine symbol (See example in A.3).
5. Maximum number of persons that the craft is designed to carry while underway, according to ISO 14946, with the person symbol.

3. Maximum Length and Beam of Hull. ISO 8666:2002.

The maximum length, L_{max} , shall be measured in accordance with 5.2, one plane passing through the foremost part and the other through the aftermost part of the craft.

This length includes all structural and integral parts of the craft, such as wooden, plastic or metal stems or sterns, bulwarks and hull/deck joints.

This length includes parts which are normally fixed, such as fixed spars, bowsprits, pulpits at either end of the craft, stemhead fittings, rudders, outboard motor brackets, outdrives, waterjets and any propulsion units extending beyond the transom, diving and boarding platforms, rubbing strakes and permanent fenders.

Outdrives, waterjets, other propulsion units and all movable parts shall be measured in their normal operating condition to their maximum lengthwise extension when the craft is underway.

This length excludes:

Outboard motors;

any other type of equipment that can be detached without the use of tools.

The Beam of Hull is confusing for multihulls but it really means ONE hull while B_{max} is the total beam of the craft.

Maximum beam, B_{max}

The maximum beam, B_{max} , shall be measured between planes passing through the outermost parts of the craft. The maximum beam includes all structural or integral parts of the craft, such as extensions of the hull, hull/deck joints, extensions such as doublings, sheer planks, chain plates, rubbing strakes, permanent fenders and liferails extending beyond the craft's side.

Beam of the hull, B_H

The beam of the hull, B_H , shall be measured in accordance with 5.3 between the outermost permanently fixed parts of the hull.

The beam of the hull includes all structural or integral parts of the craft such as extensions of the hull, hull/deck joints and bulwarks.

The beam of the hull excludes removable parts that can be detached in a non-destructive manner and without affecting the integrity of the craft, e.g. rubbing strakes, fenders, guardrails and stanchions extending beyond the craft's side, and other similar equipment.

The beam of the hull does not exclude detachable parts of the hull, which act as hydrostatic or dynamic support when the craft is at rest or underway.

For multihulls, the beam of the hull shall be established accordingly for each individual hull.

See Figure 3 for monohull measurements and Figure 2 for multihull measurements.

4. Wrong colour coding on electrical wiring.

You have two different possibilities: one is what I call the American coding whereby in the AC you use (active phase)black, (neutral) white and (protective)green. While the rest of the world uses in the AC system (active phase)brown, (neutral) blue and (protective)green/yellow. Both systems are allowed but do not mix them.

Crafts with a.c. and d.c. systems shall avoid the use of brown, white or light blue insulation colour in the d.c. system, unless clearly separated from the a.c. conductors and identified as d.c. All d.c. negative conductors shall be identified by black or yellow insulation.

If the craft is equipped with an a.c. electrical system in accordance with ISO 13297, which can use black insulation for live conductors, yellow insulation shall be used for d.c. negative conductors of the d.c. system. Black or yellow insulation shall not be used for d.c. positive conductors.

5. Different Load Conditions.

m_{LC} : light craft condition

empty craft condition plus standard equipment plus removable ballast (whether solid or liquid) when supplied and/or intended by the manufacturer to be carried when the boat is afloat, with elements positioned as follows:

1. where provision is made for propulsion by outboard engine(s) of more than 3 kW, the heaviest engine(s) recommended for the boat by the manufacturer, mounted in the working position(s);
2. where batteries are fitted, they are mounted in the position intended by the builder, and if there is no specific stowage provided for batteries, the mass of one battery for each engine over 7 kW is allowed for, and located within 1,0 m of the engine location;
3. all upwind sails supplied or recommended by the builder as standard, onboard and rigged ready for use, but not hoisted, e.g. mainsail on boom, roller furling sails furled, hanked foresails on stay

stowed on foredeck

NOTE 1 For the minimum mass of outboard engines and batteries, refer to Tables C.1 and C.2 of ISO 12217-3:2013.

NOTE 2 The mass in the light craft condition is denoted by m_{LC} and is expressed in kilograms.

m_{MO} : minimum operating condition

boat in the light craft condition with the following additions:

1. mass to represent the crew, positioned on the centreline near the main control position of:

- 75 kg where $L H \leq 8$ m,

- 150 kg where $8 \text{ m} < L H \leq 16$ m,

- 225 kg where $16 \text{ m} < L H \leq 24$ m;

- non-edible stores and equipment normally carried on the boat and not included in the manufacturer's list of standard equipment;

EXAMPLES Loose internal equipment and tools, spare parts, dishes, kitchenware and cutlery, additional anchors or sails, dinghy and outboard if carried aboard.

NOTE 1 Liquids in main storage tanks (e.g. fuel, drinking water, black

and grey water, live wells, bait tanks, etc.) are excluded.

NOTE 2 Water ballast in tanks which are symmetrical about the centreline and which are intended by the builder to be used for variable asymmetric ballasting while under way is excluded.

NOTE 3 Elements with transversally variable position (e.g. canting keels, movable solid ballast, tilting masts) are positioned symmetrically about the centreline of the boat. Elements with longitudinally variable position (eg: tilting masts or keels) are positioned so that the VCG is maximized.

NOTE 4 Any centreboard or keel is in the raised position unless it can be fixed in the lowered position and an appropriate instruction is given in the owner's manual.

NOTE 5 The mass in the minimum operating condition is denoted by m_{MO} and is expressed in kilograms.

m_L : Maximum load

load which the boat is designed to carry in addition to the light craft condition, comprising:

- the crew limit at 75 kg each;

- the personal effects of the crew;

- stores and cargo (if any), dry provisions, consumable liquids;

- contents of all permanently installed storage tanks filled to 95 % of their maximum capacity, including fuel, drinking water, black water, grey water, lubricating and hydraulic oil, bait tanks and/or live wells; plus ballast water at 100 % capacity;

- consumable liquids in portable tanks (drinking water, fuel) filled to 95 % of the maximum capacity;

- dinghy or other small craft intended to be carried aboard, and any outboard motor associated with them;

- liferaft(s) if carried in excess of the minimum required in essential safety equipment;

- non-edible stores and equipment normally carried on the boat and not included in the manufacturer's list of standard equipment, e.g. loose internal equipment and tools, spare parts, additional anchors or sails, dinghy and outboard if carried aboard;

- an allowance for the maximum mass of optional equipment and fittings not included in the manufacturer's basic outfit

NOTE 1 Liferafts are not included in essential safety equipment for Categories C and D.

NOTE 2 As a guide, not less than 20 kg per person should be allowed for personal effects on habitable boats.

NOTE 3 As a guide, the mass of yachting liferafts varies from approximately 12 +2CL (kg) to double this, according to specification.

NOTE 4 Unless otherwise required, variable position elements (e.g. canting keels, movable solid ballast, tilting masts) are positioned symmetrically about the centreline of the boat.

NOTE 5 Any centreboard or keel is in the raised position unless it can be fixed in the lowered position and an appropriate instruction is given in the owner's manual.

NOTE 6 The mass of maximum load is denoted by m_L and is expressed in kilograms.

m_{LA} : loaded arrival condition

boat in the maximum load condition minus 85 % of the maximum capacity of fixed or portable storage tanks for fuel,

oils and drinking water, and minus 90 % of edible stores, but including the worst combination of optional fittings or equipment with respect to stability

NOTE 1 The mass in the loaded arrival condition is denoted by m
LA
and is expressed in kilograms.

NOTE 2 Unless otherwise required, variable position elements (e.g. canting keels, movable solid ballast, tilting masts) are positioned symmetrically about the centreline of the boat.