INTERFACE MARINE · YACHT SURVEYORS & CONSULTANTS

Tonnage Measurement

A plain guide for owners, captains and managers of yachts and small craft under 24 m: what tonnage is, why it matters, and how we measure it.

UK and Red Ensign registers

Measurement by an authorised measurer, using the simplified method for vessels under 24 m.

Afloat or ashore

We measure wherever the yacht is, in the water or on the hard.

THE BASICS

What tonnage is, and why it matters

Despite the name, tonnage is not a weight. It is a measure of a vessel's size, worked out from her dimensions. Gross tonnage (GT) and net tonnage (NT) appear on the tonnage certificate; for yachts under 24 m they are the same figure.

When you need it

- Registering a yacht on the UK register or another Red Ensign register
- Changing flag to a Red Ensign register
- Registering a new build or an imported yacht
- After alterations that add to her size, such as a new or extended deck, a raised foredeck or a bolt-on section
- When a previous certificate is missing, doubtful or wrong

What depends on it

- Registration fees
- Crewing and manning requirements
- Which safety codes and thresholds apply to a commercial yacht
- Marina, harbour and canal dues
- Insurance

> Tonnage stays with the vessel for life. An error on the certificate can cost an owner money for years, so it pays to get it right first time.

Who can measure

Only a measurer authorised by the flag can measure a vessel and sign the certificate. Interface Marine's principal surveyor is an authorised tonnage measurer for the UK and Red Ensign Group registries.

WHICH RULES APPLY

One length decides the method

A yacht has several "lengths" on different documents. Only one of them, called **L**, decides how she is measured: below 24 m, the simplified method applies; at 24 m or more, a full measurement under the 1969 International Tonnage Convention (ITC 1969) is needed.

	What it is	Used for tonnage?
Brochure LOA	The sales figure, tip to tip, including pulpits and platforms	Never
Lh (hull length)	The builder's hull length, used for CE/RCD paperwork	Supporting evidence only
Overall length	Foremost to aftermost fixed permanent structure. Fittings such as pulpits, rails, rudders and removable platforms are left out	Yes: it goes into the formula
L	A length taken on a specific waterline, set at 85% of the hull's least depth	Yes: it decides the method

The 24 m line is strict

The simplified method is for vessels with L *less than* 24 m. A yacht with L of exactly 24.00 m needs a full ITC 1969 measurement.

Why the builder's figure isn't enough

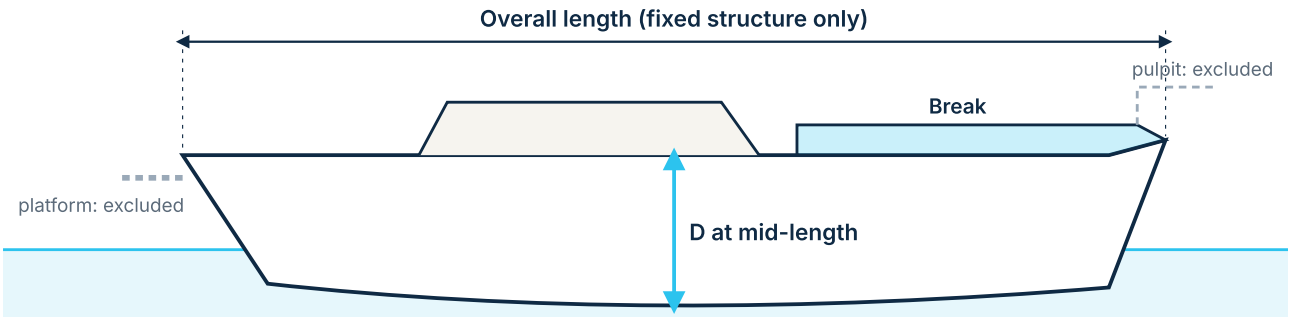
On many modern motor yachts, moulded stern steps or bolt-on sections reach the waterline used for L. L can then come out much closer to the builder's hull length than expected. We always establish L properly.

Fishing vessels are measured under separate rules. For yachts of 24 m L and over, contact us to discuss a full measurement.

THE SIMPLIFIED METHOD

Three dimensions and a factor

For yachts under 24 m, tonnage is calculated from the overall length, breadth and depth, multiplied by a fixed factor. Any raised deck section, called a break, is added separately.



Breadth B is the widest point across the outside of the hull, excluding rubbing strakes

$$GT = NT = \text{Overall length} \times \text{Breadth} \times \text{Depth} \times 0.16$$

$$+ \text{ for each break: length} \times \text{breadth} \times \text{height} \times 0.35$$

Worked example

	Length (m)	Breadth (m)	Depth / height (m)	Factor	Tonnage
Main hull	18.50	5.20	2.45	0.16	37.71
Break	4.00	5.00	0.90	0.35	6.30
GT = NT					**44.01**

Illustrative figures. The parts are added unrounded (37.7104 + 6.30), then the total is rounded to two decimals.

Where 0.16 comes from

A hull fills only about 45% of the box drawn around it. Dividing that by the historic rate of 100 cubic feet (2.832 m³) per ton gives 0.16. A break is treated as a full box, so its factor is 0.35. Because the factors are fixed, every centimetre measured goes straight onto the certificate.

HOW WE GO ABOUT IT

From enquiry to certificate

1
Documents
You send the builder's certificate, drawings and any previous tonnage certificate.

2
Check L
We confirm from the documents and drawings that L is under 24 m, and flag any doubt before attending.

3
Measure
We attend the yacht, afloat or ashore, and take each dimension at least twice.

4
Calculate & check
We calculate the tonnage and compare it with the builder's figures and any previous certificate.

5
Certificate
We complete and sign the measurement for the registry, with a full record and photographs.

On board

- **Overall length** with a levelled laser or a supported tape, end to end of fixed structure, leaving out pulpits, rails and platforms
- **Breadth** at the widest frame, to the outside of the hull, checked one frame forward and one aft
- **Depth** at mid-length on the centreline, from the underside of the deck to the inside of the hull, built up through a bilge hatch
- **Breaks** measured at five stations for breadth and height, and on three lines for length where the step is curved

Our checks

- Every dimension taken twice, and a third time if the readings differ by more than 2 cm
- Results compared with the builder's figures; any difference over 2% is re-measured
- Differences from a previous certificate found and explained, never copied
- Every reading photographed where it was taken

The test of a good file

Another measurer, or the registry, should be able to rebuild every number from our record without needing to call us.

BEFORE WE ARRIVE

Afloat or ashore, and how to prepare

Afloat

Most measurements are done in the water. We need safe access to both ends of the yacht, to the side decks, and to a bilge hatch near mid-length for depth.

On the hard

Ashore, we can reach the keel and both ends directly and plumb measurements to the ground. It is the best opportunity to settle L on a yacht close to 24 m. We need the yard's permission, and the yacht must be settled on her cradle and not being moved.

What to have ready

- Builder's certificate and hull identification number (HIN/CIN)
- General arrangement and lines drawings, if available
- Any previous tonnage certificate
- CE/RCD Declaration of Conformity
- Engine make, model and power (kW); serial plates accessible
- Details of any alterations since build
- Bilge and sole hatches near mid-length opened or accessible
- Deckhead panels removable at one point near mid-length
- Fenders and covers clear of the ends and the widest point
- A crew member on board to give access

Catamarans, multihulls and RIBs

A catamaran is measured as two hulls: each hull's length, breadth and depth are taken separately and the results added. The bridge deck between the hulls is not measured. RIBs are measured with the tubes at working pressure.

GETTING IT RIGHT

Common errors we see

Error	Why it matters
Brochure LOA used as length	It includes pulpits and platforms; overall length stops at fixed structure
Old certificate copied	Earlier figures may be wrong or incomplete, and errors are carried forward
Depth taken to linings	Depth runs to structure; measuring to a deckhead panel can lose several centimetres
Depth taken to a raised deck	The break is then counted twice, adding tonnage that isn't there
Deckhouse or flybridge treated as a break	Only a full-width step in the deck is a break
Catamaran breadth across both hulls	Can roughly double the tonnage; each hull is measured separately
Builder's Lh taken as proof of L	Moulded steps or bolt-on sections can push L close to 24 m

CASE STUDY

A 28 m yacht just under the line

A 28 m flybridge motor yacht had a builder's hull length of 23.98 m, which seemed to leave a comfortable margin. The drawings showed that her moulded stern steps reached the waterline used for L. Once they were counted, L came to 23.92 m: just 0.08 m under 24 m.

The determination was recorded with its drawing, scale check and tolerance, and the certifying authority accepted it. The previous certificate appeared to have missed the raised foredeck; counting it as a break added 12.33 GT.

GET IN TOUCH

Book a measurement

Send us the yacht's name, flag, location, and the builder's certificate or any previous tonnage certificate. We will confirm the method and reply with a fixed-fee quote.

EMAIL
info@interfacemarine.com

TELEPHONE
+33 6 09 17 85 45

WEB
interfacemarine.com

OFFICE
La Galerie du Port, 06600 Antibes, France

YOUR MEASURER
Capt. Philip Duffy

Red Ensign Group authorised tonnage measurer · IIMS Certifying Authority coding examiner · MCA Master II/2 Unlimited (Yachts) · Full Member IIMS · Associate Member RINA. Author of *Tonnage Measurement of Yachts Under 24 m*, a practical guide for surveyors and measurers, available from Interface Marine.

Interface Marine YACHT SURVEYORS & CONSULTANTS

INTERNATIONAL INSTITUTE OF MARINE SURVEYING

Interface Marine is a division of Duffy Marine Ltd. This booklet is a general guide and is not legal advice. It does not replace the regulations or the instructions of the flag State. Regulations and guidance change; the current instructions of the relevant flag always apply. Figures in examples are illustrative.