CompoTech
Carbon Composite Components

CELEBRATING 30 YEARS OF

MARINE INNOVATION



CompoTech Marine Brochure →

30 Years of Marine Innovation

Founded in 1995 in Sušice, Czech Republic, with offices in Cowes, UK, since 2001, CompoTech Plus has spent three decades redefining what's possible with composite engineering. From pioneering fibre winding for performance paddles to creating structural solutions for yachts, superyachts, and advanced vessels, CompoTech is synonymous with precision, reliability, and performance.

Our marine heritage includes:

Headfoils: From America's Cup teams to superyacht furling, precision carbon headfoils strike a balance between lightweight design and stiffness. Originally developed for Prada Challenge, Alinghi, and other AC teams, these headfoils are now adapted and widely used in superyacht furling applications.

Masts and Spars: Filament-wound carbon masts optimised for stiffness, lightness, and dynamic stability. Along with booms, bow sprits, and spi poles, we have worked with many yacht producers worldwide, from A-Class Catamaran development to Beneteau Seascape edition rigs.

Marine structures for Superyachts: Furling boom mandrels, custom elliptical tubes, spreaders, rudder stock, tender poles and composite beams for integration.

CompoTech's true-zero axial fibre placement and Integrated Loop Technology (ILT) provide performance gains unattainable with conventional laminates. Whether for a production dinghy or a 100-metre superyacht, our composites deliver consistency, efficiency, and durability.



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1 / Vestas Sailrocket 2 Current world sailing speed record holder – collaboration on advanced composite structures contributing to high-speed experimental sailing.

2 / Decision 35 Catamaran structural tubes

3 / Carbon fibre furling headfoil

4 / Carbon headfoils orginally Developed for Americas cup in 2000

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AUDEMARS PIGUET
ALINGHI.COM
riri
infonet

Technology

Smarter Composites for Marine Performance

CompoTech's technological edge comes from its advanced fibre-winding systems and unique process innovations.

Axial Fibre Placement
Our true-zero axial winding technology aligns fibres exactly at 0°, unlike conventional winding methods. This ensures:

- Maximum stiffness and strength-to-weight ratio
- Greater fatigue resistance
- Precise control over stiffness and torsional behaviour
- Reduced material waste and variability

Section Optimisation
Beyond our portfolio of tooling sections, we can very quickly optimise section geometry and laminate to offer a bespoke mast section to specific requirements. We can use finite element analysis (FEA) to balance weight, strength, and stiffness. 3d-printed tooling, tailored layups, and fibre orientations achieve optimal bending, torsion, and compression performance—perfect for rigging, beams, and masts.

Integrated Loop Technology (ILT)
ILT integrates continuous fibre loops during manufacture, eliminating secondary bonding and metallic fasteners. This provides:

- Seamless load transfer
- Lightweight and robust joints
- Superior fatigue life and cleaner design

Smart Integrated Carbon Fibre Sensors
CompoTech integrates carbon and fibre-optic sensors directly into the winding during manufacture to measure strain, displacement, and vibration in real time. This technology maintains structural integrity while enabling self-monitoring composite structures for marine, industrial, and aerospace applications.

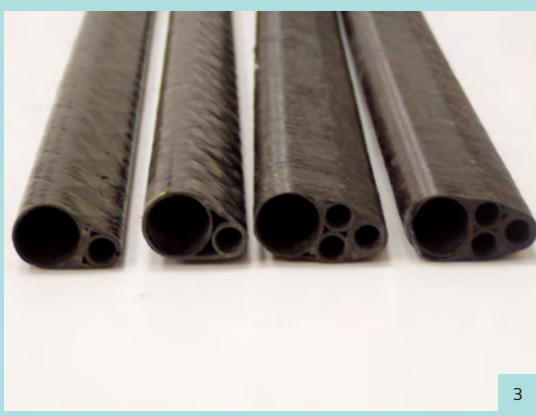
These technologies define CompoTech's approach: efficient, high-performance, and durable composite solutions for demanding marine environments.



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1 / Advanced winding of beam with carbon sensors integrated

2 / Rudder stock

3 / Head foil profiles

Telescopic Masts & Deployable Marine Applications

CompoTech's telescopic technology translates advanced aerospace-grade composite design and production into a lightweight, into practical marine applications. It was initially developed for lightweight deployable defence mobile communication and drone jamming.

Our telescopic technology uses filament-wound carbon tubes that slide smoothly, operated by an internal pulley rope system with an electric drive for automatic extension and retraction.

Applications include:

- Deployable radar and communication masts for yachts, research, and patrol vessels
- Telescopic lifting arms, cranes, and davits for workboats and tenders
- Retractable lighting and camera poles for superyachts and offshore platforms
- Variable geometry sail and rig systems for wind-assisted propulsion.

WISAMO Wing Sail Mast
CompoTech's telescopic technology is showcased by the WISAMO Wing Sail for the Michelin Wind Ship Project. The demonstrator vessel uses a seven-stage telescopic mast extends from 4.5 m to 21 m, supporting a deployable sail area from 60 to 100 m². Weighing about 200 kg, it offers high power-to-weight efficiency. The mast automatically extends and retracts, ensuring safe, space-efficient operation on various vessels. Its carbon composite structure provides high stiffness, low weight, and corrosion resistance in marine environments.



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1 / WISAMO demonstrator yacht

2 / Telescopic mast testing

Engineering & Manufacturing Support

CompoTech's Marine Section Catalogue provides a portfolio of high-performance tubes, beams, and structural profiles tailored for marine environments.

CompoTech offers complete design-to-production assistance including:

- Load analysis and FEA validation
- Prototype and serial manufacturing
- Structural and fatigue testing with third-party testing institutes
- Lifecycle analysis and sustainability documentation

CompoTech maintains a rigorous quality framework to ensure every component meets the highest standards of performance and reliability.

ISO 9001:2015 Certified – quality management system covering design, production, and testing of advanced composite structures.

DNV Guidelines Compliance – selected products verified to meet marine and offshore classification standards.
Full Traceability – all materials, processes, and testing records documented and traceable from fibre batch to finished component.

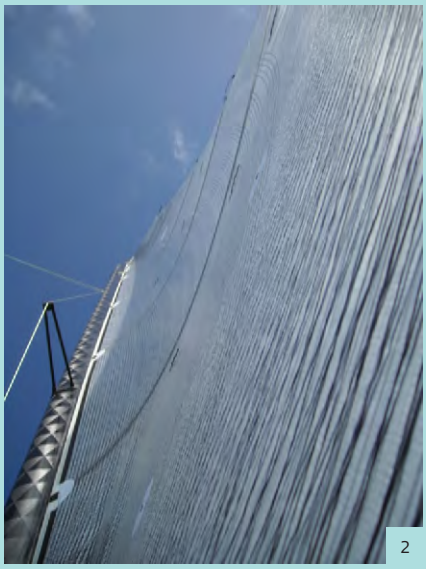
Process Control & Auditing – continuous monitoring and regular internal and external audits ensure consistency and repeatability.

Continuous Improvement – feedback-driven development enhances product reliability, efficiency, and sustainability.



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1 / FEA analysis on filament wound modular mast
2 / Carbon mast profiles
3 / Super Yacht boom furling mandrel
4 / Mini Transat


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High-Performance Carbon Fibre Yacht Masts & Spars

CompoTech designs and manufactures carbon fibre mast tubes and spars for yacht builders, riggers, and naval architects seeking optimal weight, stiffness, and adaptability.

A comprehensive range of standard mast sections is available, forming a flexible platform for custom rig development with full traceability from fibre to finished structure.

Key Features & Advantages

- Axial Fibre Filament Winding Technology – seamless tubes with a high ratio of true-zero axial unidirectional fibres for strength and stiffness.
- Cross-Wound Reinforcement – optimised fibre angles for precise torsional and bending control.
- Variable Section Optimisation – tailored wall thickness and fibre distribution to meet design loads.
- Local Reinforcements – concentrated strength around joining sleeves and spreaders.
- Modular Mast System – shorter tube sections joined at load points for simplified logistics and installation.
- On-Site Assembly – joining sleeves can be bonded or fitted during final installation.
- Integrated Design Features – optional luff grooves, hardware fittings, or service channels.
- Custom Finishes – standard shrink- tape texture or smooth, polished carbon.
- Logistics & Maintenance Benefits – reduced transport cost and panel-bypanel repair capability.

Design Flexibility

- Adjustable wall thickness and stiffness for each mast panel
- Custom geometries and laminate schedules available on request
- Full engineering support and documentation provided

1 / Director Vlada testing A Class development masts in Lake Garda

2 / ??????????



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Pic Caption



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Marine Section Catalogue

CompoTech's Marine Section Catalogue provides a portfolio of high-performance tubes, beams, and structural profiles tailored for marine environments.

All sections are produced using CompoTech's advanced winding technology for precision, repeatability, and traceability.

Standard Tube & Beam Sections
- Round, oval, and elliptical profiles up to 9m. Joining systems used for longer tubes up to 32m
- Ultra High Modulus (UHM) fibres options offer Axial modulus up to 400 GPa – 60% stiffer than steel at 25% lighter

Box, C, and Custom Sections
- Square, rectangular, and custom C-sections for deck beams, supports, and lifting arms
- Tapering, reinforcement, and hybrid fibre options available

End Fittings & Integrated Loops
- ILT end joints and bonded fittings with continuous fibre paths
- Stainless or titanium inserts, CNC-machined openings, and wiring channels
- Applications: masts, booms, spreaders, rigging tubes, beams, and foiling structures



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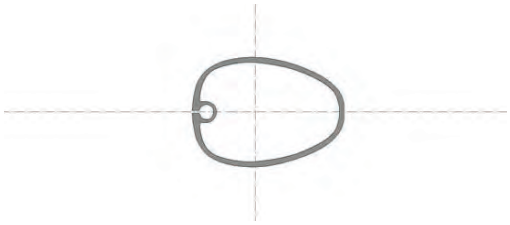
1 / Filament wound mast sections joined with internal joiners at spreader junction.

2 / Furling headfoil sections with joiner.

CT 150

Dimension mm 107 x 75

Available Lengths
4m & 8m Parallel
4m Tapered
Joining Sleeve
XX Wall 4.5 mm
YY Wall 3.5 mm



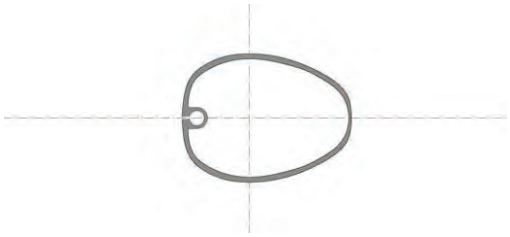
Elxx Nmm^2 4.6 E+10
Elyy Nmm^2 7.5 E+10

Weight kg/m 1.50

CT 190

Dimension mm 115 x 84

Available Lengths
8m Parallel
4m Parallel
4m Tapered
Joining Sleeve



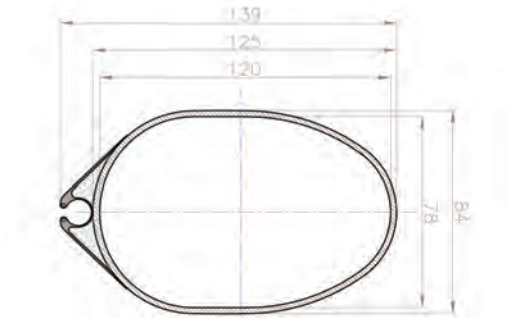
Elxx Nmm^2 6 E+10
Elyy Nmm^2 8.8 E+10

Weight kg/m 1.50

CT 200

Dimension mm 125 x 84

Available Lengths
8.2m Parallel, 4.3m Parallel,
5.8m Parallel,2.9m Parallel, Joining Sleeve
XX Wall 3.0 mm
YY Wall 2.5 mm



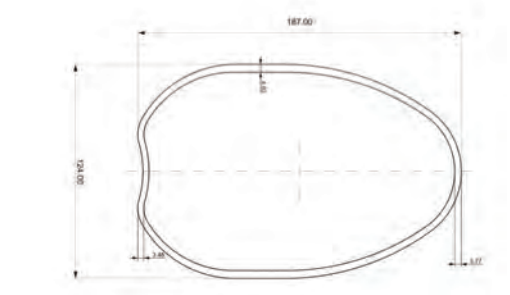
Elxx Nmm^2 9.6 E+10
Elyy Nmm^2 1.7 E+11

Weight kg/m 1.67

CT 311

Dimension mm 187 x 124

Available Length
6.45m
different wall thickness available for top, middle and bottom sections



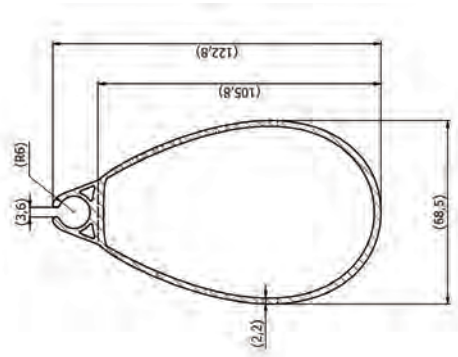
Elxx Nmm^2 3.96 E+11
Elyy Nmm^2 6.75 E+11

Weight kg/m 2.48

A Class HM mast

Dimension mm 105.8 x 65.8

High modulus fibre design with Emodulus 140 -160 GPa.
0.9kg/m including 3d printed luff groove profiles.
modular tapered top section with 3d printed tooling up to 5m.



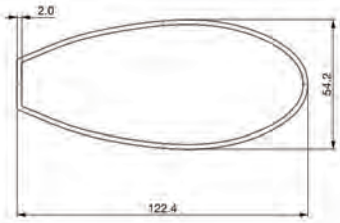
Elxx Nmm^2 3.5 E+10
Elyy Nmm^2 6.9 E+10

Weight kg/m 0.70

Cat mast

Dimension mm 122 x 54

Available Length
5.15m



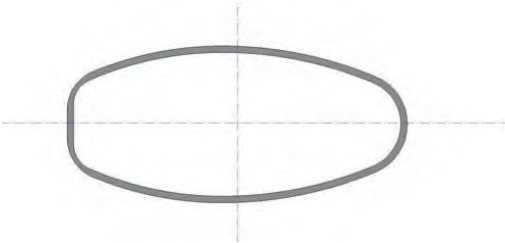
Elxx Nmm^2 2.07 E+10
Elyy Nmm^2 7.92 E+10

Weight kg/m 0.86

IMS A1

Dimension mm 220 x 100

Available Lengths
6m to 8m
Joining Sleeve
Taper Top
Wall Thickness 3.8 mm



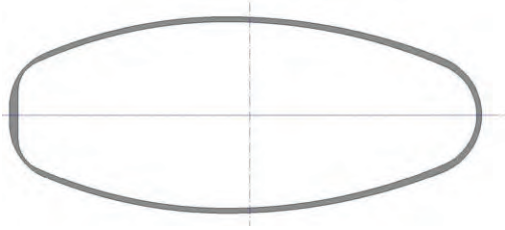
Elxx Nmm^2 2.6 E+11
Elyy Nmm^2 8.86 E+11

Weight kg/m 3.00

IMS C

Dimension mm 332 x 134

Available Lengths
6m to 8m parallel
3m Tapered
Joining Sleeve
XX Wall 4.8 mm
YY Wall 3.5 mm



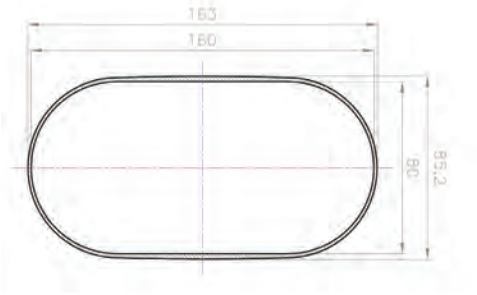
Elxx Nmm^2 4.57 E+11
Elyy Nmm^2 2 E+12

Weight kg/m 3.80

CT Boom 163/85

Dimension mm 163 x 85

Available Length
5.6m
XX Wall 1.5 mm
YY Wall 2.6 mm



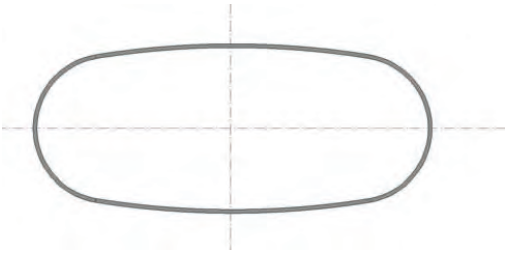
Elxx Nmm^2 9 E+10
Elyy Nmm^2 1.8 E+11

Weight **kg/m** 1.16

CT Boom 275/148

Dimension mm 275 x 148

Available Lengths
6m
Wall Thickness
4.0 mm



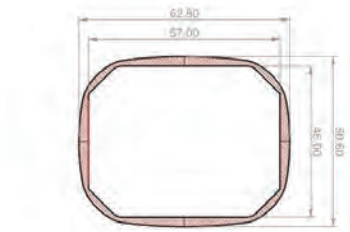
Elxx Nmm^2 4.57 E+11
Elyy Nmm^2 2 E+12

Weight **kg/m** 3.80

Dinghy boom

Dimension mm 63 x 51

Available Length
2.65m



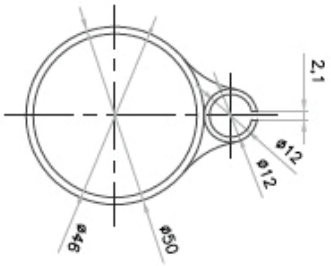
Elxx Nmm^2 1.2 E+10
Elyy Nmm^2 1.6 E+10

Weight **kg/m** 0.63

Dinghy mast with luff

Dimension mm ø40mm -

We can design to specific bending profile using a range of parallel and tapered round tubes. Using integrated carbon or bonded 3d printed luff groove profiles. please ask for more info.



Elxx Nmm^2
Elyy Nmm^2

Weight **kg/m**



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