Pogo Class40 S4 – STL Version

A printable RC sailboat by YACHTPRINT, Chris Angelduro Version 2.0, 09/2025

The *Pogo Class40 S4* is the fourth-generation offshore racer from Pogo Structures. It competes in the *Class40* circuit - a “box-rule” class for 40-foot monohulls for short-handed ocean racing. Rules: ≤ 12.19 m length, ≤ 4.50 m beam, fixed keel and mast, restricted sail area. The Pogo S4 stands out with its aggressive hull geometry: a scow-style bow, full chines running to the stern, and a tight, planing-friendly aft section.

This 3D-printable RC yacht features the same powerful appearance and performance. At 1:12,5 scale it is 1m long which facilitates handling while maintaining a considerable size for decent sailing performance in light - and strong conditions. The model features a fixed keel box that is compatible with the DF95 keel.

TECHNICAL DATA of the model:

Scale	1:12,5
Length	1.000 mm hull + detachable bowsprit
Width	360 mm
Weight	3,2 kg ready to sail w/o battery, thereof 1,0 kg for fin and keel bulb
Print plate	205x205x250 (minimum size for x/y/z)
Filament	ABS/GF approx. 1,5-2,0 kg (two rolls)

In addition to the printable components, you will need the following parts:

- 2-channel RC transmitter and receiver system, including battery
- Midi servo for the rudder, Sail winch standard size such as those from Windforce
- 12mm carbon tubes (1mm wall thickness) for the mast and 10mm tubes for the booms
- Sails from a Mini40 multihull, IOM, or a comparable size (can be ordered from YACHTPRINT)
- Sheet line (e.g., 0.5mm fishing line) and 1mm rubber line
- Ball bearings: 7 pieces of 4/13/4 with U-groove for blocks, M3/4 turnbuckle for gooseneck
- Keel from a DF95 (available as spare parts); the bulb can also be 3D-printed and filled with lead
- 3mm stainless steel rod for the rudder axis, 2x shaft collars with 3,1mm hole for rudder arms

3D PRINTING

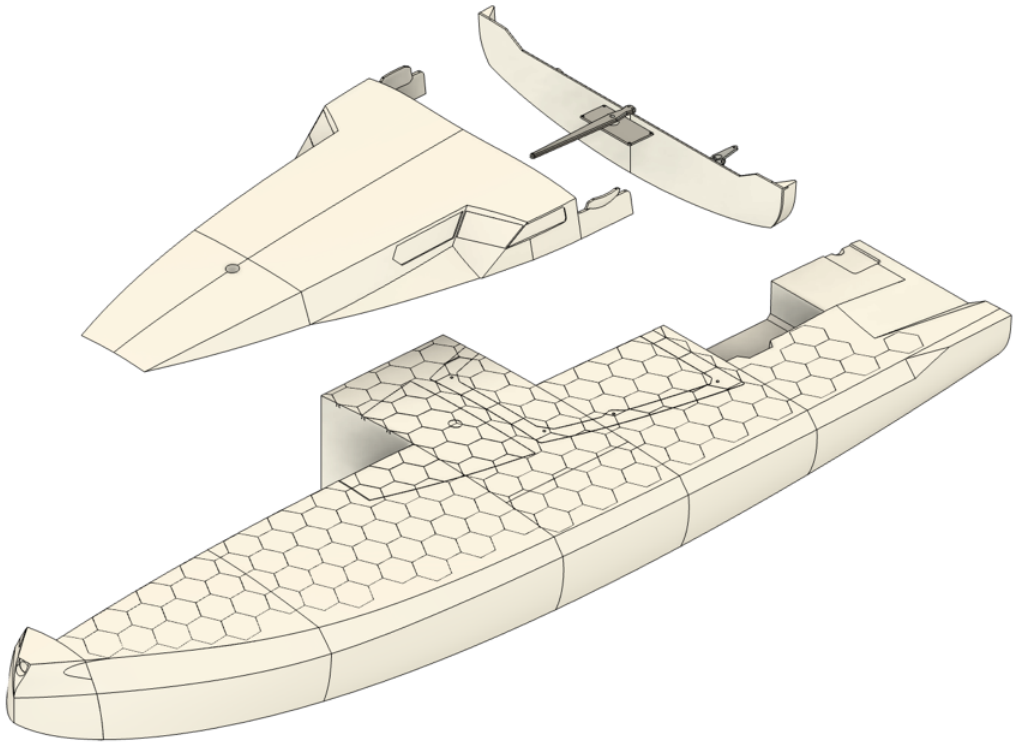
IN SHORT => - please Read -

1) mirror parts marked with “L” in the slicer along X for the right side corresponding parts
2) set infill to 0% for hull sections to get hollow parts
3) print with 0.4 nozzle, 2 walls/perimeters, a layer height 0,24mm and width 0,42mm
4) increase resolution in the slicer to print the internal stringers:
eg “gap closing radius”=0,001mm & “print thin walls” in Bambu Studio

As filament I suggest PRIO 1: ABS/GF or PRIO2: LW-PLA (e.g., ColorFabb at 252°C, 48% flow, 30mm/s max speed) for the hull. LW PLA needs to be finished with a light glass/epoxy coating after assembly. ABS can be used w/o lamination. Just sand and fill it to your preferences. Keep the boat as light as possible!

The hull segments H1-6 are printed upright and are hollow (set infill to 0%). Always print bottom and top layers. The top layers are printed by bridging. Allow min 4 top layers to obtain a smooth surface.

The hull has an internal honeycomb-stringers structure to avoid buckling and to increase rigidity. The cuts to accomplish that structure are recessed 0,45mm below the deck – and hull surface. So in order to obtain a smooth surface (almost) without cuts on the outside and honeycomb stringers on the inside you have to print in normal mode (not vase) with two walls and a layer width of max 0,42mm.



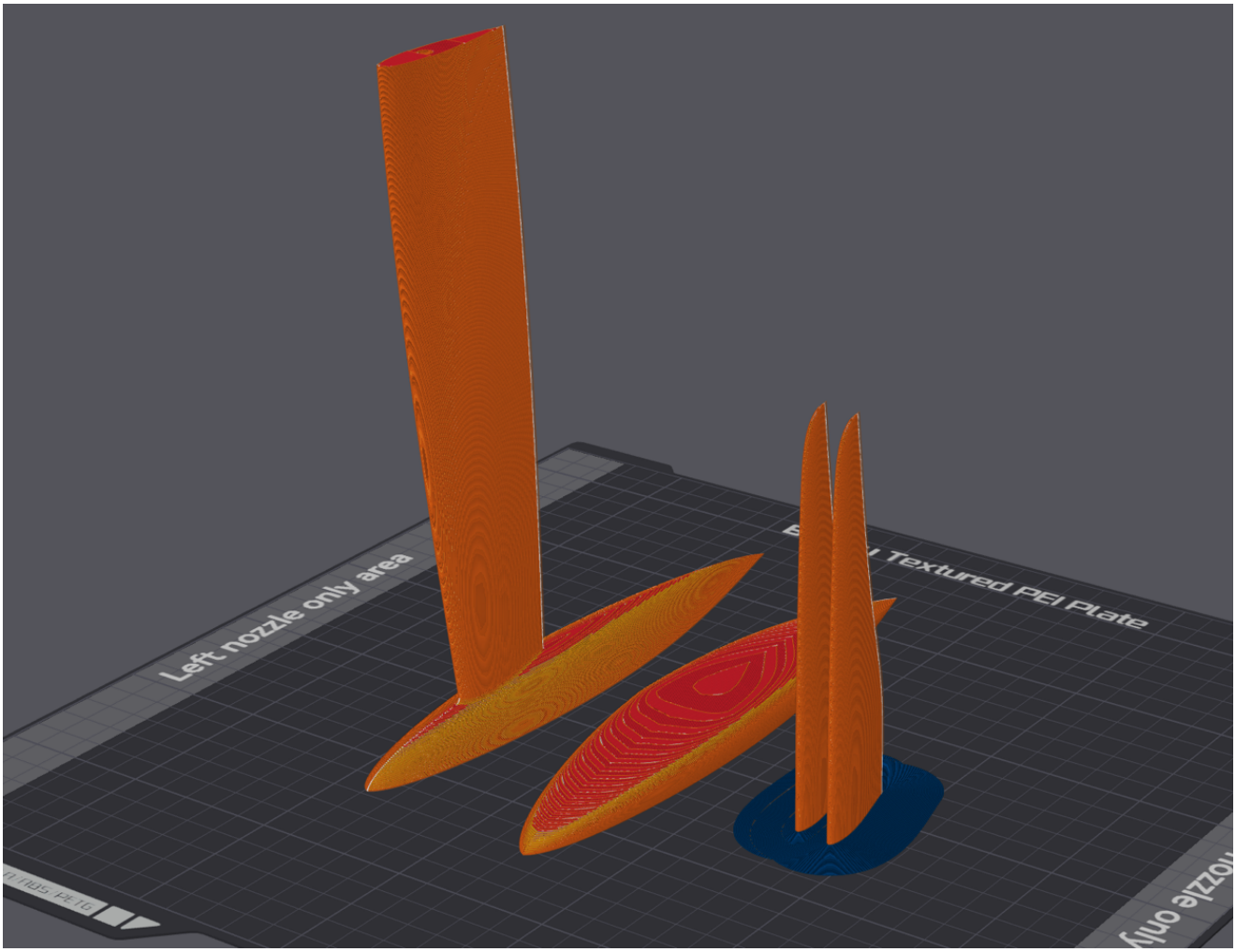
The hull segments feature recessed honeycomb stringers. Mirror left side parts along X in the slicer.

3D printed parts list POGO S4	Material	Nozzle	Infill	Quantity	Mirror?	comment
10 HULL						
H1 bow.stl	ABS/GF or LW-PLA	0.4	0%	1	-	2 walls/0,24mm layer height
H2 L.stl	ABS/GF or LW-PLA	0.4	0%	1	yes	2 walls/0,24mm layer height
H3 L.stl	ABS/GF or LW-PLA	0.4	0%	1	yes	2 walls/0,24mm layer height
H4 keel L.stl	ABS/GF or LW-PLA	0.4	0%	1	yes	2 walls/0,24mm layer height
H4 keel middle.stl	ABS/GF or LW-PLA	0.4	0%	1	-	2 walls/0,24mm layer height
H5 L.stl	ABS/GF or LW-PLA	0.4	0%	1	yes	2 walls/0,24mm layer height
H6 transom L.stl	ABS/GF or LW-PLA	0.4	0%	1	yes	2 walls/0,24mm layer height
BULK MAIN front L.stl	ABS/GF or PETG	0.4	8% Gyroid	1	yes	break the corners, use alignment pins
BULK MAIN rear L.stl	ABS/GF or PETG	0.4	8% Gyroid	1	yes	break the corners, use alignment pins
DECK STEP.stl	ABS/GF or PETG	0.4	solid	2	-	
STERN PLATE L.stl	ABS/GF or PETG	0.4	8% Gyroid	1	-	
STERN PLATE R.stl	ABS/GF or PETG	0.4	8% Gyroid	1	-	
20 CABIN & RC						
CABIN front.stl	ABS/GF or LW-PLA	0.4	5% Gyroid	1	-	
CABIN rear HATCH.stl	ABS/GF or LW-PLA	0.4	5% Gyroid	1	-	
HATCH FRAME.stl	ABS/GF or PETG	0.4	8% Gyroid	1	-	
RC CAGE LARGE floor.stl	ABS/GF or PETG	0.4	solid	optional	-	alternative to SHORT
RC CAGE LARGE walls.stl	ABS/GF or PETG	0.4	solid	optional	-	alternative to SHORT
RC CAGE SHORT floor.stl	ABS/GF or PETG	0.4	solid	1	-	alternative to LARGE
RC CAGE SHORT walls.stl	ABS/GF or PETG	0.4	solid	1	-	alternative to LARGE
RC WINCH Podest attachement wa	ABS/GF or PETG	0.4	solid	1	-	
RC WINCH Podest.stl	ABS/GF or PETG	0.4	solid	1	-	
Window front L.stl	ABS/GF or PETG	0.4	solid	1	yes	
Window middle L.stl	ABS/GF or PETG	0.4	solid	1	yes	
Window rear L.stl	ABS/GF or PETG	0.4	solid	1	yes	
30 KEEL & RUDDER						
KEEL BOX COMBINED.stl	ABS/GF or PETG	0.4	solid	1	-	
RUDDER HORN simple (1).stl	ABS/GF or PETG	0.4	solid	2	-	
RUDDER POGO 3mm axis (1).stl	ABS/GF or PLA-HT	0.4	solid	2	-	
RUDDER SERVO.stl	ABS/GF or PETG	0.4	solid	1	-	
Scale KEEL.stl	ABS/GF or PETG	0.4	8% Gyroid	optional	-	
Scale RUDDER L.stl	ABS/GF or PETG	0.4	8% Gyroid	optional	-	
TILLER RC.stl	ABS/GF or PETG	0.4	solid	1	-	
40 RIG						
Blocks - bearing 4/13/4						
block band.stl	ABS/GF or PLA-HT	0.4	solid	1	-	for the block on the traveller
block bottom.stl	ABS/GF or PLA-HT	0.4	solid	7	-	
block top.stl	ABS/GF or PLA-HT	0.4	solid	7	-	
Boom parts						
Boom band 10mm 1 ring.stl	ABS/GF or PLA-HT	0.4	solid	3	-	for each sheet and for jib topping lift
Boom band 10mm 2 rings.stl	ABS/GF or PLA-HT	0.4	solid	optional	-	
Boom band main10mm.stl	ABS/GF or PLA-HT	0.4	solid	7	-	
Boom cap.stl	ABS/GF or PLA-HT	0.4	solid	1	-	
Gooseneck						
GOOSE 10mm BOOM 1.stl	ABS/GF or PLA-HT	0.4	solid	1	-	
GOOSE 10mm BOOM 2.stl	ABS/GF or PLA-HT	0.4	solid	1	-	
GOOSE MAST 12mm Mast.stl	ABS/GF or PLA-HT	0.4	solid	1	-	
GOOSE PIVOT 12mm.stl	ABS/GF or PLA-HT	0.4	solid	1	-	
GOOSE turnbuckle adapter.stl	ABS/GF or PLA-HT	0.4	solid	2	-	
SHEET POSTline.stl	ABS/GF or PLA-HT	0.4	solid	1	-	for the jib sheet
SPREADER 12mm Mast.stl	ABS/GF or PLA-HT	0.4	solid	2	-	
SPREADER ENDCAP.stl	ABS/GF or PLA-HT	0.4	solid	4	-	
FORESTAY HOOK 12mm Mast.stl	ABS/GF or PLA-HT	0.4	solid	1	-	
TRAVELLER CAR middle.stl	ABS/GF or PLA-HT	0.4	solid	1	-	
TRAVELLER CAR.stl	ABS/GF or PLA-HT	0.4	solid	2	-	
TRAVELLER.stl	ABS/GF or PLA-HT	0.4	solid	1	-	
BOWSIE original.stl	ABS/GF or PLA-HT	0.4	solid	5-10	-	many, depending on your rig setup
CHAINPLATE simple.stl	ABS/GF or PLA-HT	0.4	solid	4	-	

The cabin parts are printed the same way but I suggest a gyroid infill of around 7%.

The rudders are printed upright, standing on their root section with a stabilizing brim. 5-8 walls!
(The keel fin must be from carbon to hold the keel weight. I recommend using the DF95 parts for that. The keel box is adapted to fit that fin.)

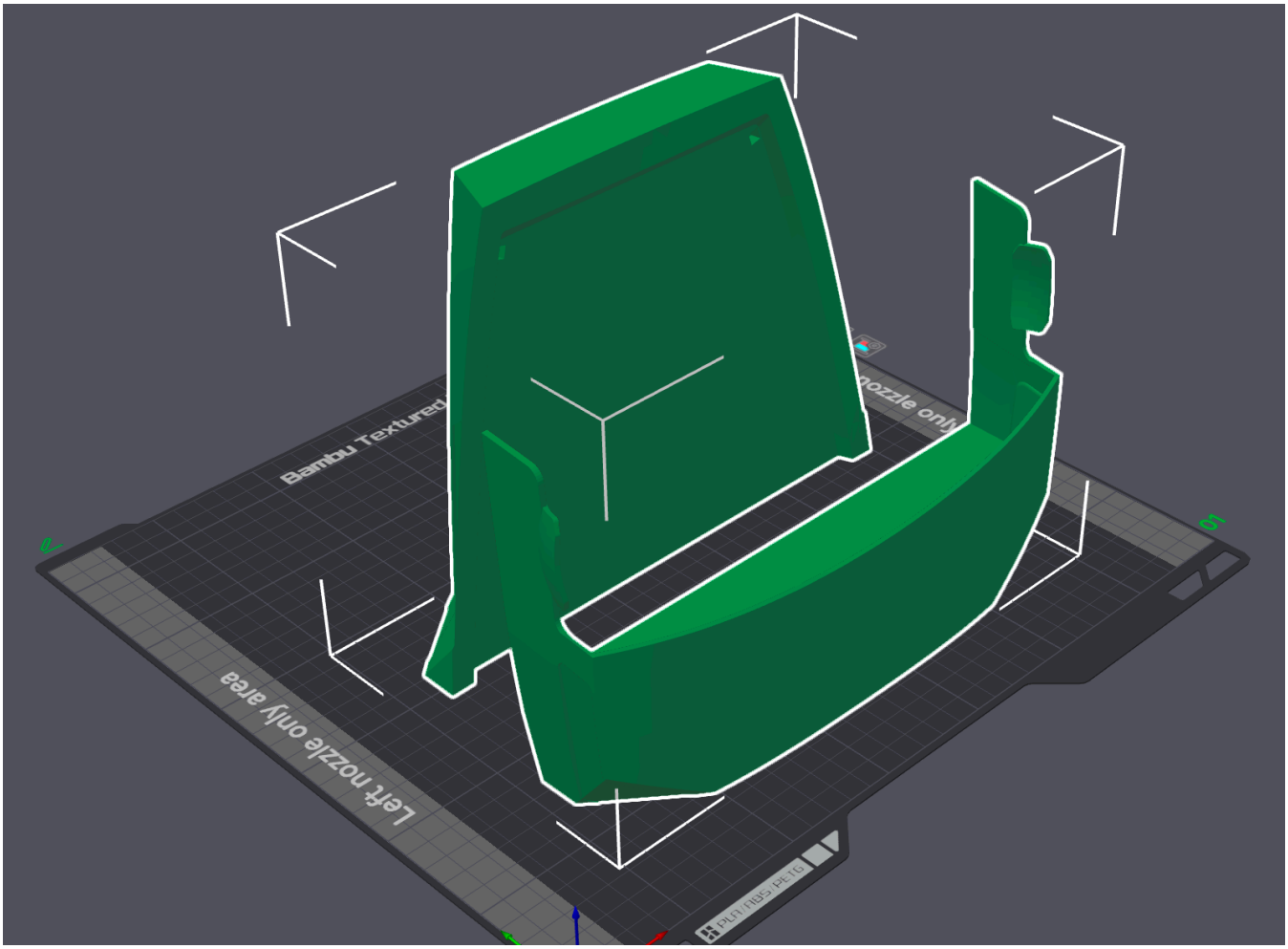
The scale rudders are printed the same way as the sailing one. The scale keel can be printed by a horizontal cut in the slicer between the leading - and trailing point of the bulb.



The scale keel and scale rudders can be printed like this. Use a brim on the rudders

All other parts are printed solid like the stern end plate or the keel box. The internal bulkheads around the keel box can be printed with a 7-8% infill.

The largest printable parts is the rear cabin section and the corresponding cabin hatch frame. Cut these parts one or two times in your slicer until it fits your printer. I cut them once horizontally for a Bambu H2D. If you add another vertical cut it will fit most printers.

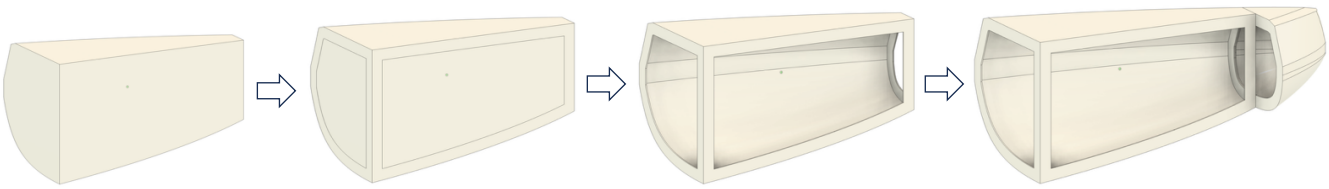


The rear cabin section is the largest printable part. Here it is cut horizontally at 90 degrees to fit an H2D

ASSEMBLY

After 3-5 days of printing the assembly goes really fast! Begin at the bow and proceed toward the stern. The general approach is to cut out the inner parts of the mating faces leaving a 5-10mm edge as gluing surface (see description above). The hull is then peace by peace glued together.

The insides of the mating faces of the hull segments are cut out while leaving a 10mm frame as glueing surface and for rigidity. You can use a soldering iron with a knife as tool piece for that cutout.



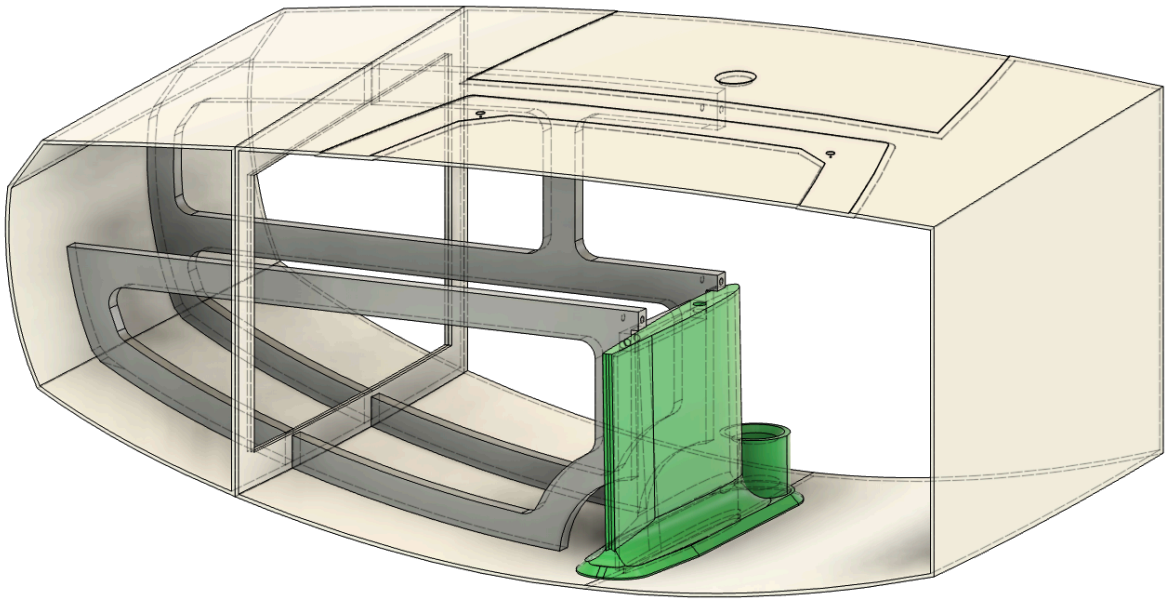
Cutting the inside walls of the segment while leaving a 10mm frame (honeycomb left away for illustration)

KEEL SEGMENT H4

The keel consists of three segments; segment H4L should be mirrored in the slicer for the right side.

The keelbox (pictured in green) is attached to the central section in the designated area. The hull is then opened below to allow the keel fin to slide into place. The DF95 keel fin and weight are compatible with these printed parts. A threaded M3 pin is required at the top edge of the fin, passing through the keel box and secured with a nut. The mast foot is integrated in the keel box.

The keelbox is supported by two main bulkheads. Each bulkhead comes in two peaces (left side to be mirrored in the slicer). Glue together the middle section H5m with the side sections H4L and mirrored H4L aka “H4R” before installing the bulkheads. You can use little filament bits and the holes in the bulkheads mating surfaces to create reference pins (see picture) to ease the alignment of the bulkheads.

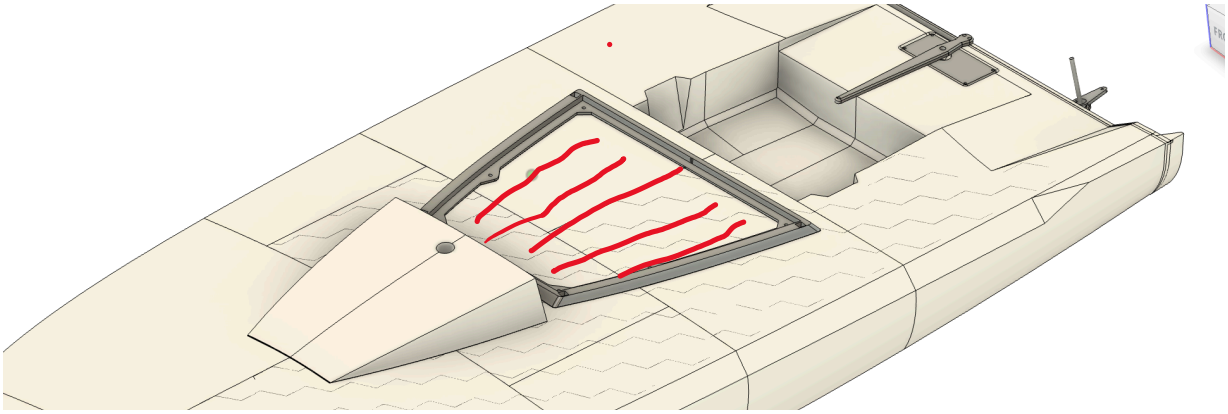


The keel section with the two main bulkheads (honeycomb stringers not displayed here)

The cabin has a fixed front section and a removable rear hatch for RC access. The hatch attaches to the frame with 5x5x5 mm magnets or friction.

Before gluing the forward section to the deck (using the deck markings as a guide), cut a hole at the marked mast location. The mast is 12mm in diameter, but a slightly larger hole makes assembly easier.

Once the front cabin section is glued, remove the inner surface of the deck hatch and attach the hatch frame from the rear cabin part. To help with alignment while gluing, you can use the rear cabin part as a guide for the frame.



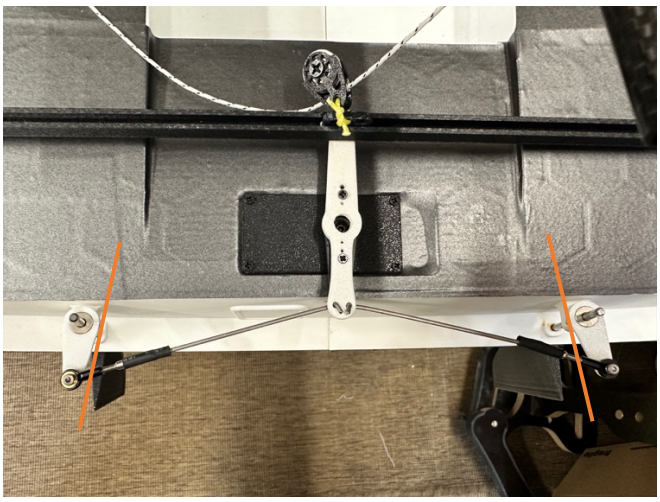
The frame of the cabin hatch is glued to the deck and the inner part of the deck is cut out as indicated

Once the hatch frame is fixed and the deck is opened as indicated in the picture above you can in stall the RC-Cage. There is a smaller 2/3 version and a larger full version. The receiver, battery and any other equipment that you wish (e.g. a GPS) goes in there. As there is PLENTY of space already in the smaller version I recommend to use this one. The cage is glued together with the walls to the floor but it is not glued to the hatch frame. It stays loose so that you can take it out for inspection of the hull or keel box etc. It can however also be secured by 4-6 screws if you wish.

The rudders use a 3mm stainless steel axis. Cut some dents and grooves in the axis where it goes into the rudder, heat it up and press it into the hole in the rudder. The rudders slide directly in the bracket holes of the rear end plate. Drill up those holes with a 3,1mm drill (not bigger as this creates a lot of play).

The rudder arms house two shaft collars with a central hole of 3,1mm to slot onto the rudder axis. The rudder arms are then connected to the tiller in the middle which itself is mounted on a central rudder servo. Make sure that the ruder arms point slightly, ca. 2-5 degrees to the outside when in neutral. This creates a differential in the rudder angles when turning (outside rudder angles less than inside rudder).

The pushrods from the tiller to the rudder arm are ca. 100mm long, the rudder axis is 110mm



In neutral position, the rudder arms point outwards

DECK EYES

To create deck eyes, bend a wire into a U and trim it to approximately 15mm. Bend both ends 90 degrees in the same direction and insert them into two small holes on the deck, securing with epoxy. The orientation of the ends is important, as they need to apply pressure against the deck when force is applied. The positions for the deck eyes are indicated in the plan further below.

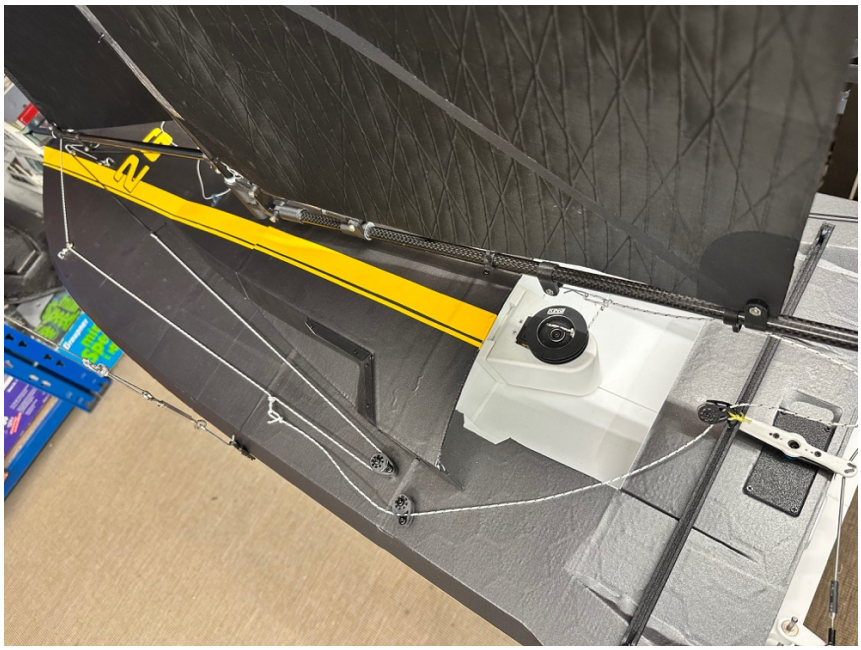


The deck eyes are simple wire bents (example picture from another boat)

SHEETING

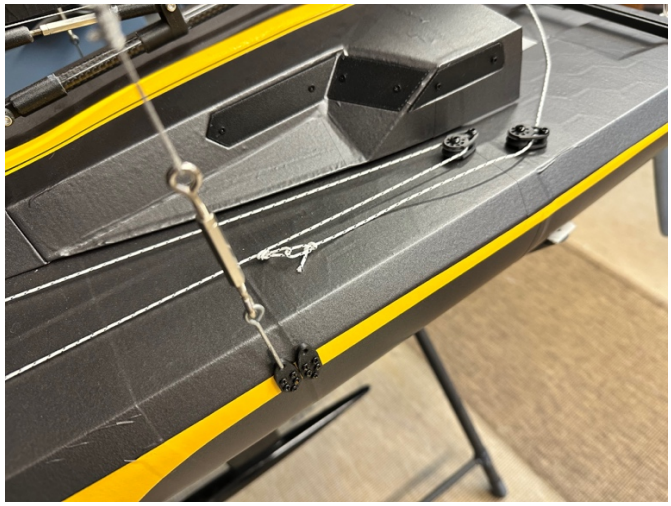
The sheeting system uses a rubber band to keep a central winch sheet under tension. This central winch sheet goes around the whole boat and moves forward and backward, driven by the winch servo. Two separate sail sheets are attached to this central sheet, one for the jib and one for the main sail.

The central winch sheet starts at the sail winch and goes to the bow

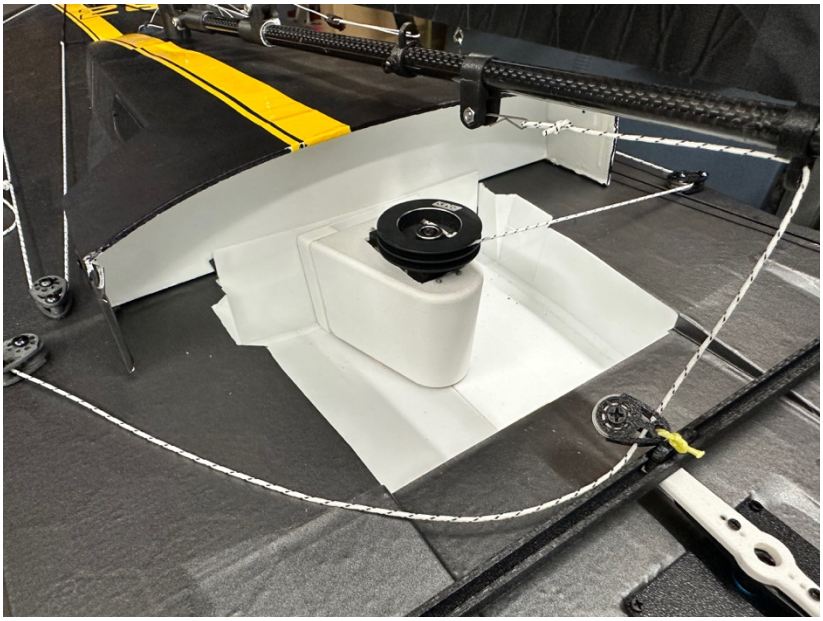


….and comes back at the other side where it is attached to a rubber band.

The jib sheet running from the central sheet via a turning block to the jib boom



The main sheet running straight into a block then on a second block that is attached on the traveller



The view from the rear shows also the attachement of the sail sheet on the boom.

The winch sits in a podest that is easily detachable via a dove tail joint. Slide the podest upwards for detaching for e.g. maintenance of the winch. Only the rear wall of the dove tail is glued to the cockpit.

The rubber line must be set in a way that it still tensions the winch sheet in the full out/eased position. The winch pulls against the rubber line when sheeting in for upwind sail configuration.

As turning blocks you can purchase parts e.g. from “Cap Maquettes” (French store) or “Sailsetc.” (UK store). Alternatively, you can use the printable parts provided here. To complete the blocks, you need ball bearings with a U groove and a size of 4x13x4 (in mm, inner hole/outer diameter/thickness).

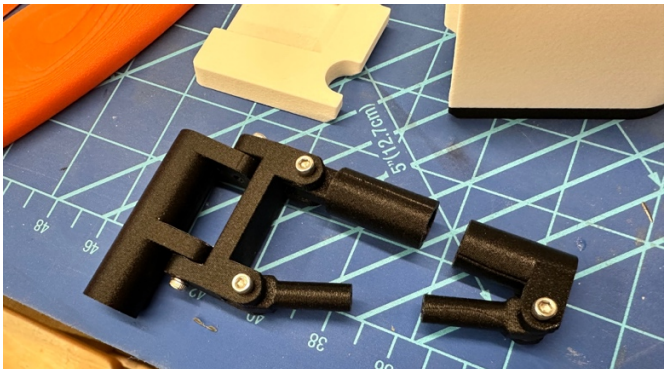
APPENDAGES (keel, rudders)

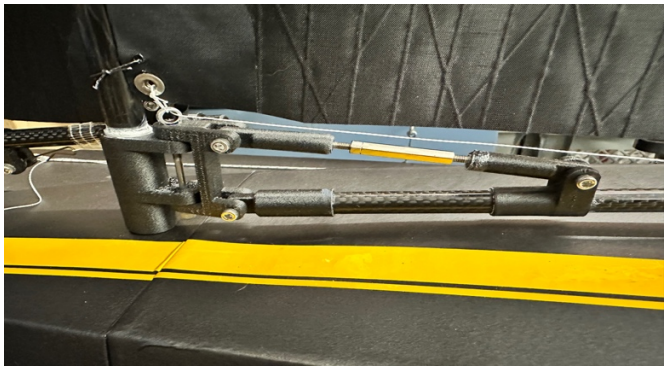
The boat is compatible with the Dragon Force 95 (DF95) fin and keel bulb, which are widely available as spare parts. Alternatively, you can 3D print the bulb and fill it with lead and epoxy to reach about 750-1000g. The bulb attaches to the DF95 keel fin.

The rudder setup is described above. In addition to the sailing appendages there are also keel and rudders for display purposes included. Note: these appendages would not work in RC scale as they are too small.

RIG AND SAILS

The provided printable rig parts can be used to assemble a custom rig with 12mm carbon tubes. A gooseneck can be printed as shown below. You need a small turnbuckle to serve as kicker to adjust twist. The booms are both 10mm carbon tubes. The boom band standard and with holes can fit there.

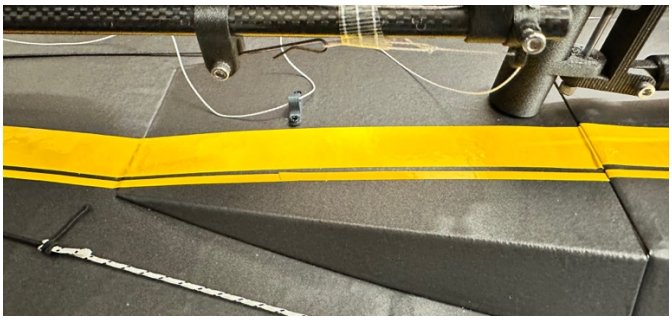




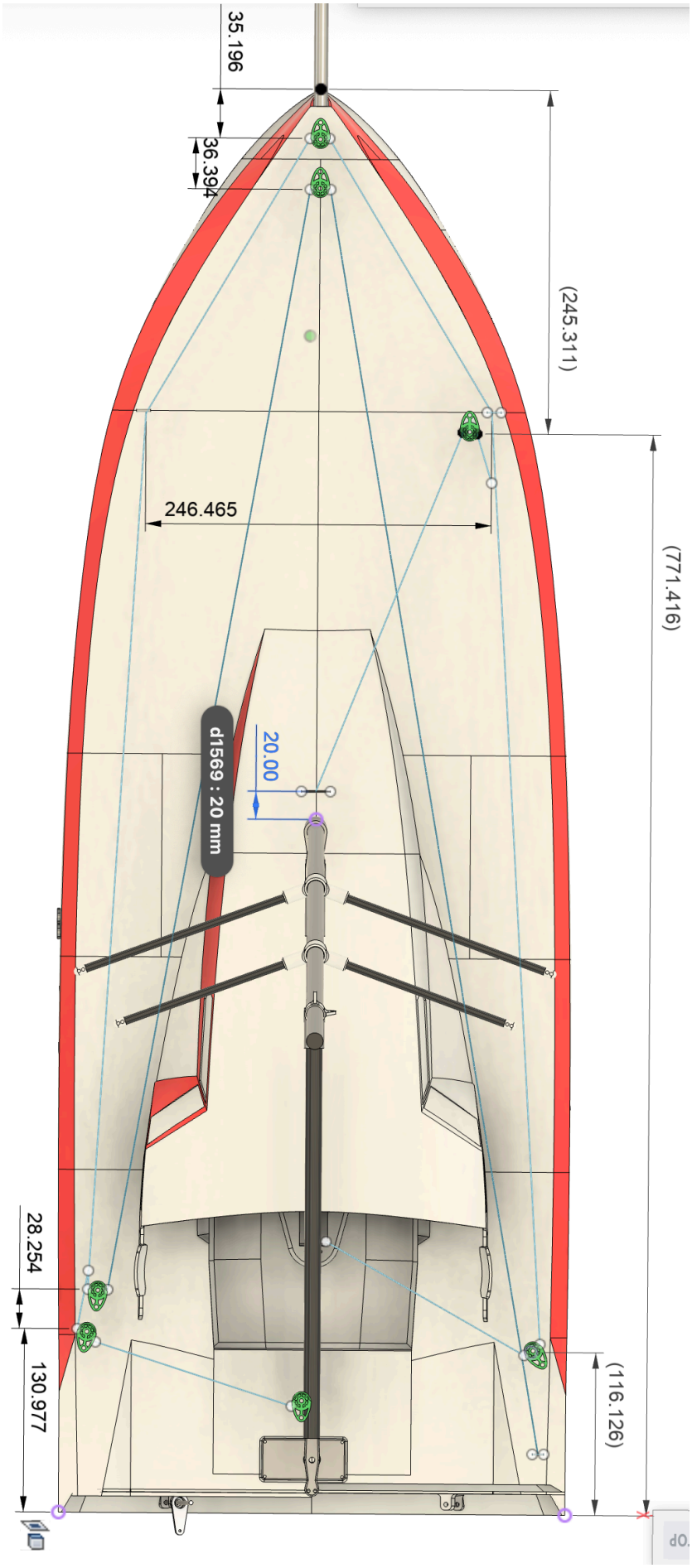
T*he gooseneck can be mounted upright for pull-down - or upside down for push-down of the main boom*

The main boom with the attachement of the cunningham (left), the sheet (middle) and the clew (right)

The jib boom with the pivot that goes through a deck eye and attaches to a second deck eye



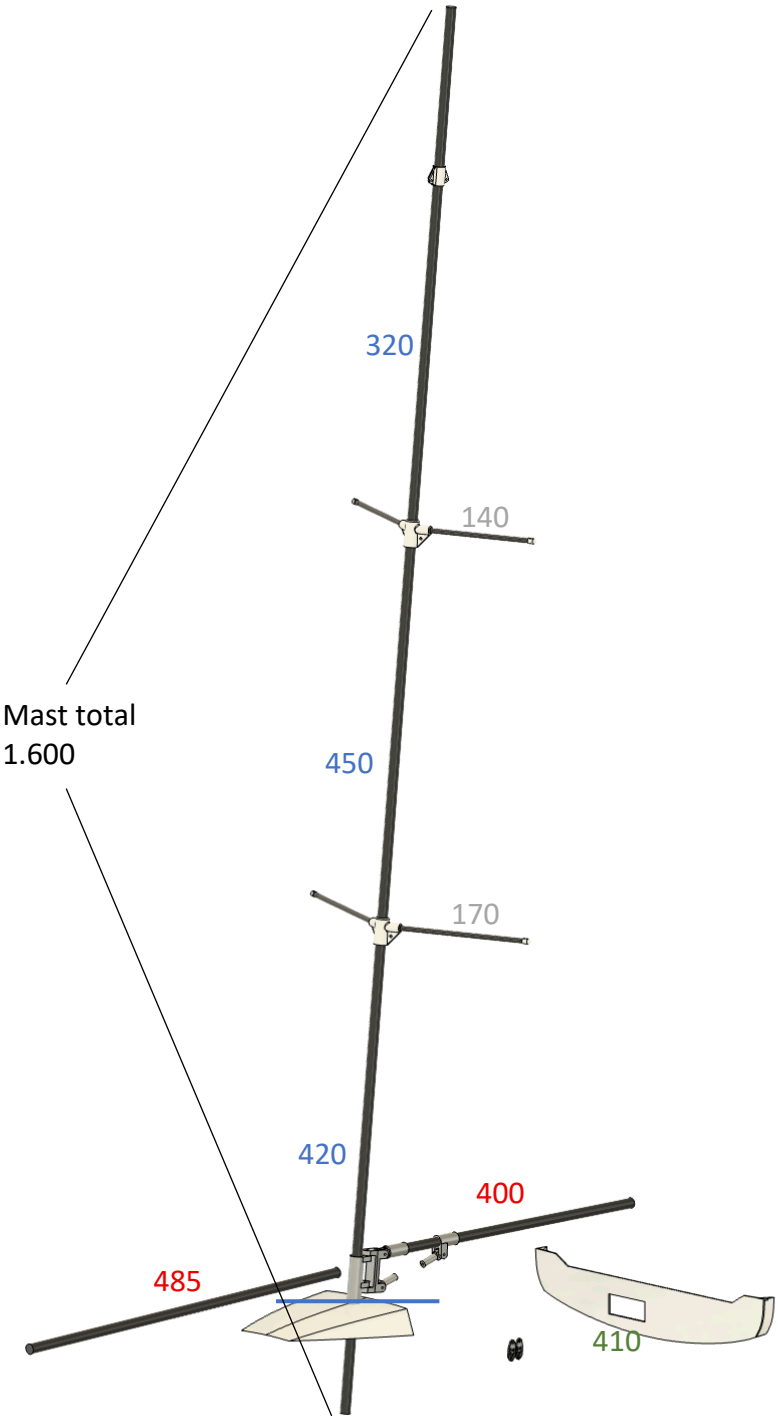
The sheet attachement is the same as for the main


35.196
36.394
(245.311)
246.465
(771.416)
d1569 : 20 mm
20.00
28.254
130.977
(116.126)

RIG PLAN

The carbon tubes for the mast are 12mm outer diameter with a wall thickness of 1mm. If you combine two tubes, use an 8mm carbon tube as insert of 80mm length. Use laminated tubes instead of pultruded (too britle). The spreader tubes are 6mm carbon, also 1mm wall thickness.

The mainsail hooks in the open top of the mast. You may reinforce that area with a metal ring or a roving. With laminated carbon tubes however, I never had any issues without reinforcement.



Rig dimensions:

- Mast length total 1.600 mm
- Height lower spreader 420 mm
- (from top surface of forward cabin)
- Height between spreaders 450 mm
- Height top spreader to forestay 320 mm
- Lower spreader length 170 mm
- Upper spreader length 140 mm
- Main boom 400 mm
- Jib boom 485 mm
- Chainplate distance from stern 410 mm

The rig measurements are all approximate. I suggest to make all spars slightly overlength and cut them to final dimensions/positions once the sails are made and attached.

The main sail is attached with loose strings around the mast. When making those strings put a 3mm drill bit between mast and string in order to get an even play.

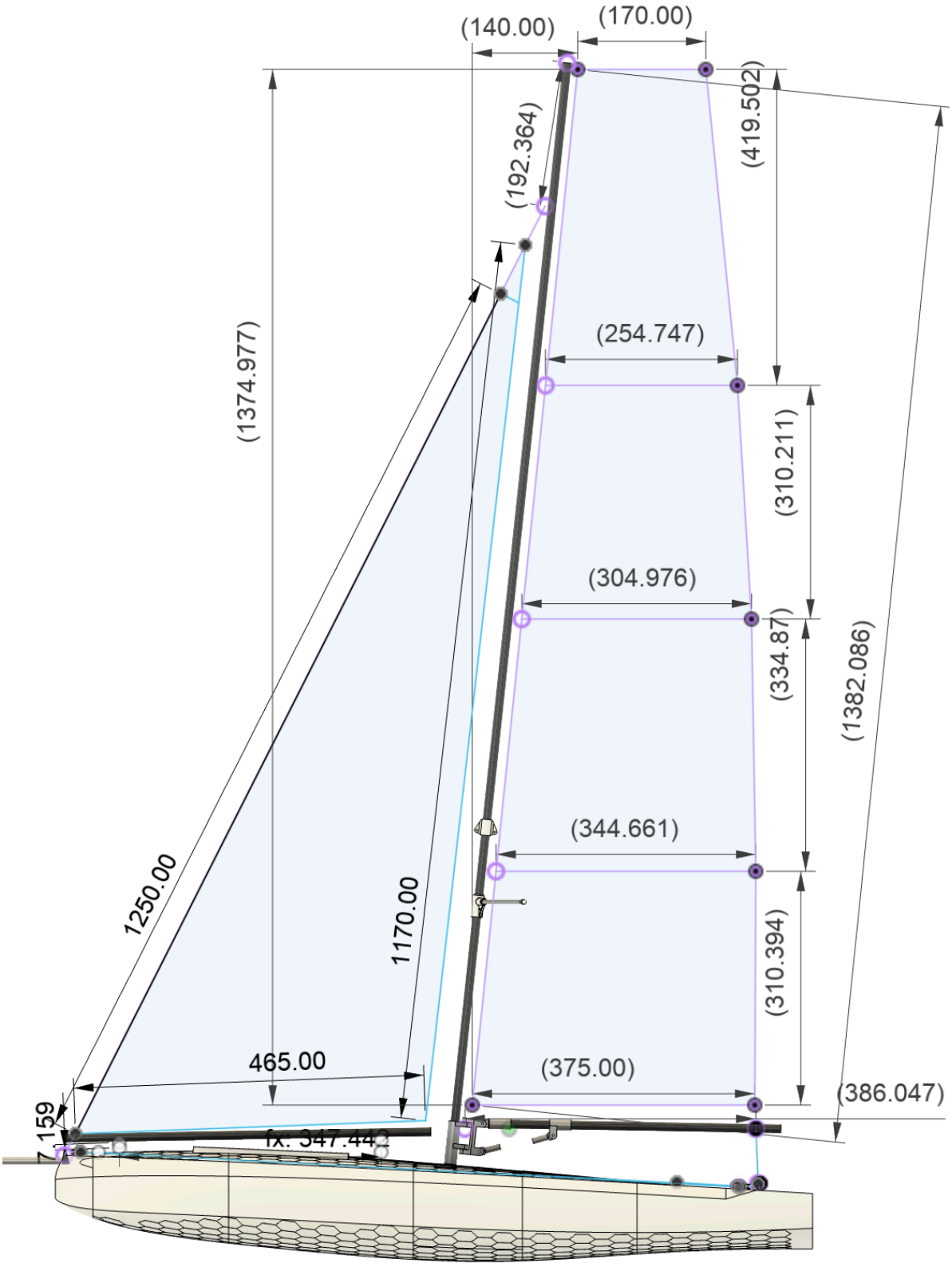
The jib has a forestay through a pocket in the luff (leading edge) and a halyard on top. At the clew there's a topping lift attached to adjust twist.

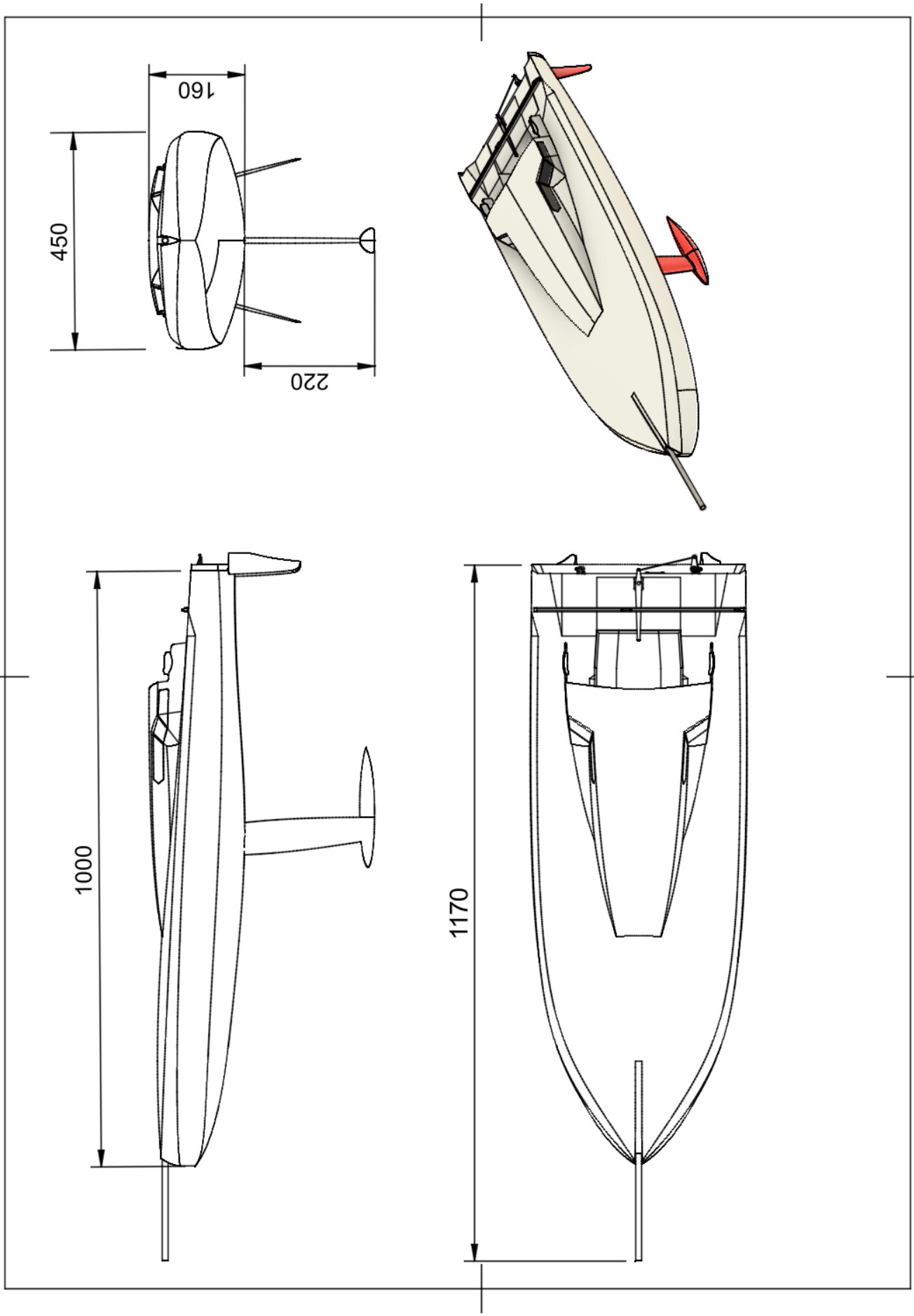
When fully sheeted in (upwind) the mainsail should deflect from the center line by approx. 2 degrees, and the jib 12 (!) degrees.

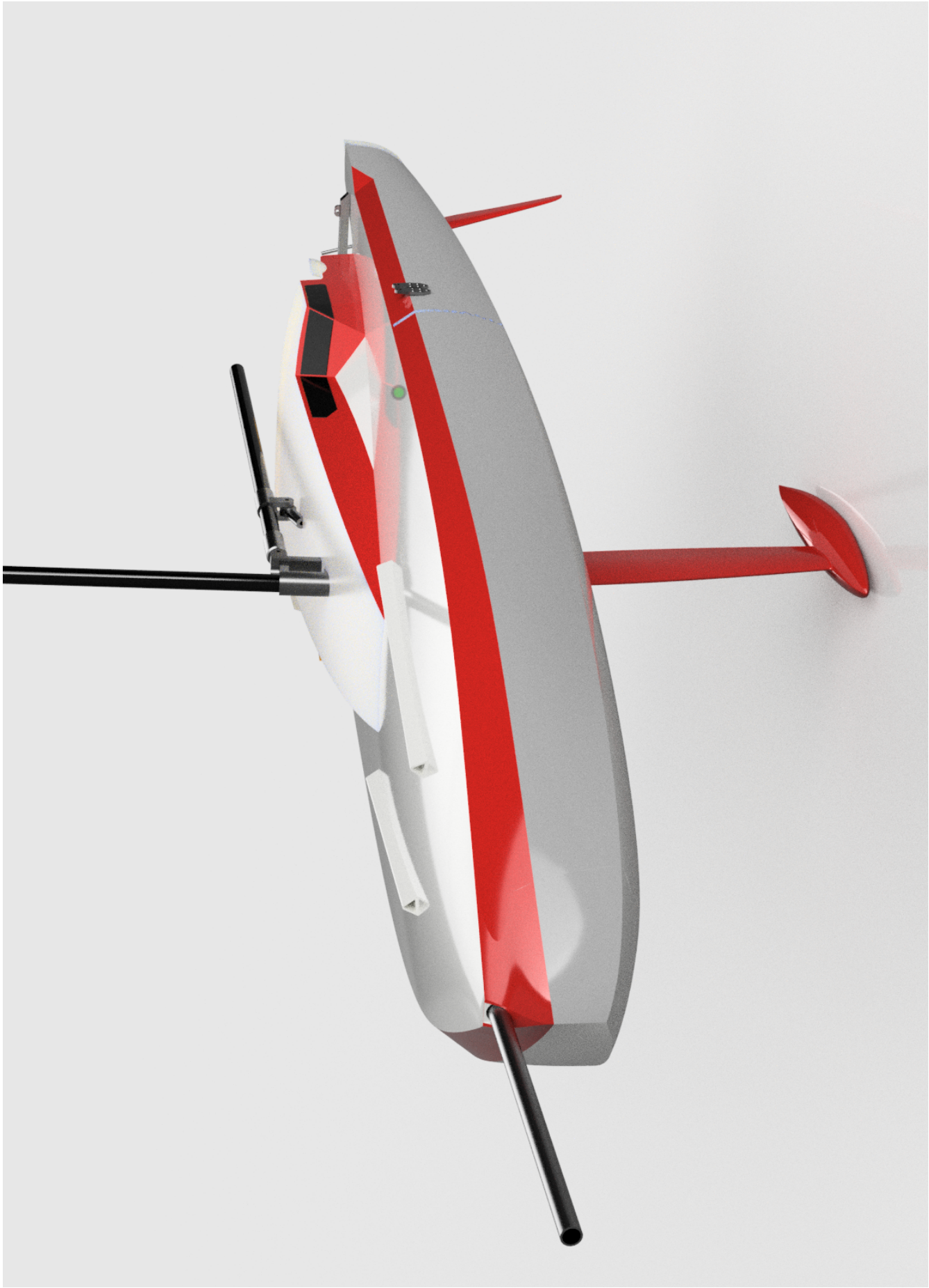
The pivoting main boom length (distance from pivot in gooseneck to shroud attachement) should be 90% of the corresponding pivoting jib boom length. By that the booms end up parallel when fully eased (more or less, adjust as necessary)

SAIL PLAN

Sails of IOM size boats may fit. The sail plan shown here is scale and suits as A-rig. You can approach YACHTPRINT.de for purchasing material or ready-made sails. Attachment to the mast is via strings.




160
450
220
1000
1170



GENERAL REMARKS

PLEASE DON'T SHARE THE FILES. A lot of genuine work went into it and there are hundreds of scammers selling other people's intellectual property. As I cannot secure this technically, I depend on you.

You purchased a license to print as many boats and parts as you wish for YOUR OWN PERSONAL USAGE.

When you sell a boat, THE LICENSE GOES WITH IT. Please purchase a new license if you have another boat in use or if you want to build another one. If in doubt, just contact me at info@yachtprint.de

You can use third party printing services but PLEASE MAKE SURE THEY DELETE THE FILES after printing.

If you consider building up a fleet, e.g. for club racing, ask me for a VOLUME DISCOUNT starting at 3 units.

If you run into problems, have any questions or If you wish changes to certain parts PLS CONTACT ME.

ACTIVELY post about your project in the Facebook community. I love discussing and gathering new views.

PRINT IT, BUILD IT, SAIL IT and HAVE FUN!

Your

Chris Angelduro
YACHTPRINT