

DEHLER 30 od

by Chris Angelduro

Version 1.1, 10/2024



INTRODUCTION

The Dehler 30 One Design (30od) is a sailboat designed for both competitive racing and fast cruising. Built with lightweight materials, it is optimized for speed, particularly in offshore racing conditions. The boat is equipped with a carbon rig, a performance-oriented sail plan, and a twin rudder system to enhance maneuverability and control. Suitable for double-handed or solo sailing, the Dehler 30od offers a balance of modern design and performance, aimed at sailors seeking an efficient and responsive vessel.

The 3D-printable model closely replicates the real boat, modified for scale. The underwater hull, appendages, and rig are adjusted from the real boat to achieve at the floating position on the design waterline, creating a stable and balanced RC boat for sailing. To simplify the construction, the design utilizes the keel blade and weight from the DF65 (Dragon Force 65). For display, there are scale versions of the keel and rudders available, along with a printable boat stand.

TECHNICAL DATA

Length 635 mm hull / 720 mm incl. bowsprit
 Width 225 mm
 Height 1.175 mm incl. mast
 Weight 1,4 kg incl. keel and battery (RTS)

MINIMUM PRINTER VOLUME (X/Y/Z)

Dehler 30od	230/200/200
<i>in comparison:</i>	
Prusa MK4	250/210/220
Bambulab A1	256/256/256

INSTRUCTONS – DEHLER 30 OD 3D

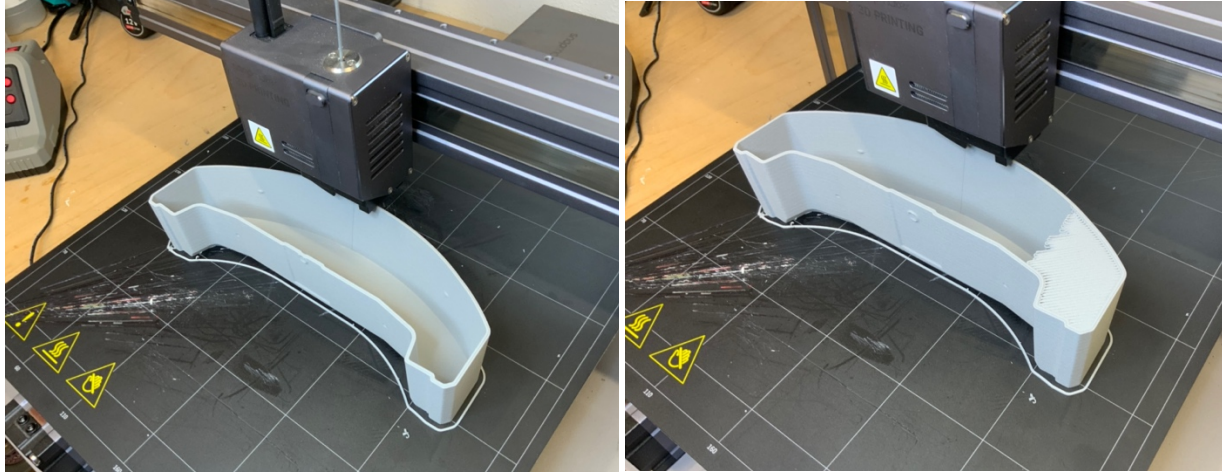
PRINTED PARTS LIST

DEHLER 30od, 3D printing parts list						
				print in normal mode (not vase)		Version 1.1, October 2024
#	HULL	Material	Nozzle	Infill	Quantity	comment
1	H1 bow.stl	LW-PLA	0.8	0%	1	2 walls, <u>Z</u> midship underwater for alignment, 3 top-/bottom-layers
2	H2 mast.stl	LW-PLA	0.8	0%	1	2 walls, <u>Z</u> midship underwater for alignment, 3 top-/bottom-layers
3	H3 keel lower L.stl	LW-PLA	0.8	0%	1	2 walls, 3 top- and bottom-layers
4	H3 keel lower R.stl	LW-PLA	0.8	0%	1	2 walls, 3 top- and bottom-layers
5	H3 keel upper.stl	LW-PLA	0.8	0%	1	2 walls, 3 top- and bottom-layers
6	H4 cockpit.stl	LW-PLA	0.8	0%	1	2 walls, <u>Z</u> midship underwater for alignment, 3 top-/bottom-layers
7	H5 transom.stl	LW-PLA	0.8	0%	1	2 walls, <u>Z</u> midship underwater for alignment, 3 top-/bottom-layers
8	CABIN raw.stl	LW-PLA	0.8	0%	1	2 walls, 3 top- and bottom-layers
9	CLEET.stl	PLA or PETG	0.4	15%	3	print slow and upside down
10	CTBRD case.stl	PLA or PETG	0.4	0%	1	10 walls or more for strength, should have no voids/infill.
11	FOOT SUPPORT Cockpit.stl	PLA or PETG	0.4	15%	1	alternatively LW-PLA for homogenous look
12	SPRIT.stl	PLA or PETG	0.4	15%	1	
13	WINCH.stl	PLA or PETG	0.4	15%	1	Scale in slicer for different sizes (two large, two smaller)
#	RC	Material	Nozzle	Infill	Quantity	comment
14	SERVO PLATE.stl	PLA	0.4	15%	1	
15	BLOCK small low.stl	PLA	0.4	15%	2	
16	BLOCK small up.stl	PLA	0.4	15%	2	
17	Servo Mount Std.stl	PLA	0.4	15%	1	
18	Servo Mount Std lowered.stl	PLA	0.4	15%	1	
19	SAIL SERVO ARM.stl	PLA	0.4	15%	1	
#	RIG	Material	Nozzle	Infill	Quantity	comment
20	TRAVELLER Mount.stl	PLA or PETG	0.4	15%	2	
21	BACKSTAY CRANE.stl	PLA	0.4	15%	1	
22	BOOM BAND M2.stl	PLA	0.4	15%	7	
23	CLAMP.stl	PLA	0.4	15%	4	
24	FORESTAY ATTACH.stl	PLA	0.4	15%	1	
25	GOOSENECK boom.stl	PLA	0.4	15%	1	
26	GOOSENECK mast.stl	PLA	0.4	15%	1	
27	GOOSENECK turning.stl	PLA	0.4	15%	1	
28	MAINSHEET POST.stl	PLA or PETG	0.4	15%	1	
29	MAST BASE.stl	PLA or PETG	0.4	15%	1	
30	SHROUD attachement.stl	PLA or PETG	0.4	15%	4	
31	SPREADER.stl	PLA	0.4	15%	1	
32	THROUGH HULL.stl	PLA or PETG	0.4	15%	2	
#	APPENDAGES	Material	Nozzle	Infill	Quantity	comment
33	RUDDER functional.stl	PLA+/-CF	0.4	15%	2	Maximize number of walls to avoid infill. Print upright with brim
34	RUDDER HORN adapter.stl	PLA	0.4	15%	1	
35	RUDDER HORN.stl	PLA	0.4	15%	2	
36	scale KEEL lower.stl	PLA or PETG	0.4	15%	1	
37	scale KEEL total.stl	PLA or PETG	0.4	15%	1	
38	scale KEEL upper.stl	PLA or PETG	0.4	15%	1	
39	scale RUDDER.stl	PLA or PETG	0.4	15%	2	
#	MISC	Material	Nozzle	Infill	Quantity	comment
40	STAND front.stl	PLA or PETG	0.4	15%	1	
41	STAND rear.stl	PLA or PETG	0.4	15%	1	

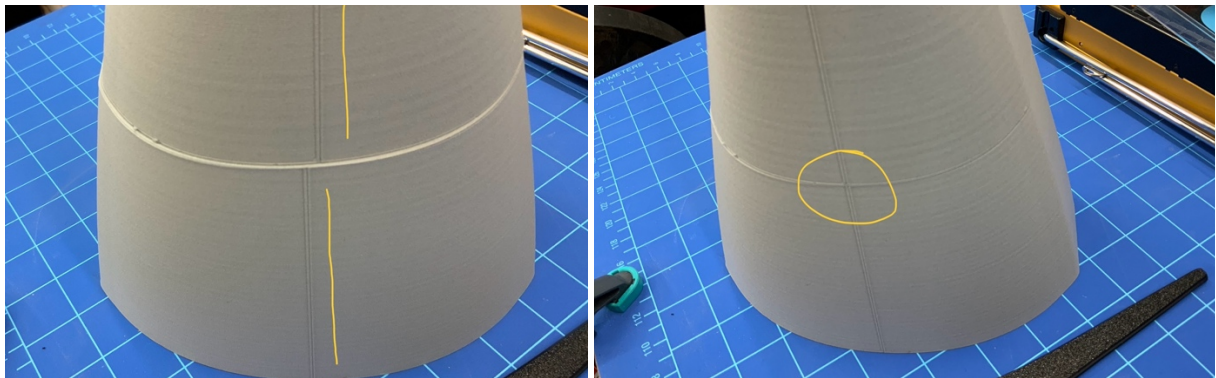
3D PRINTING

Printing is split up into two sections mainly:

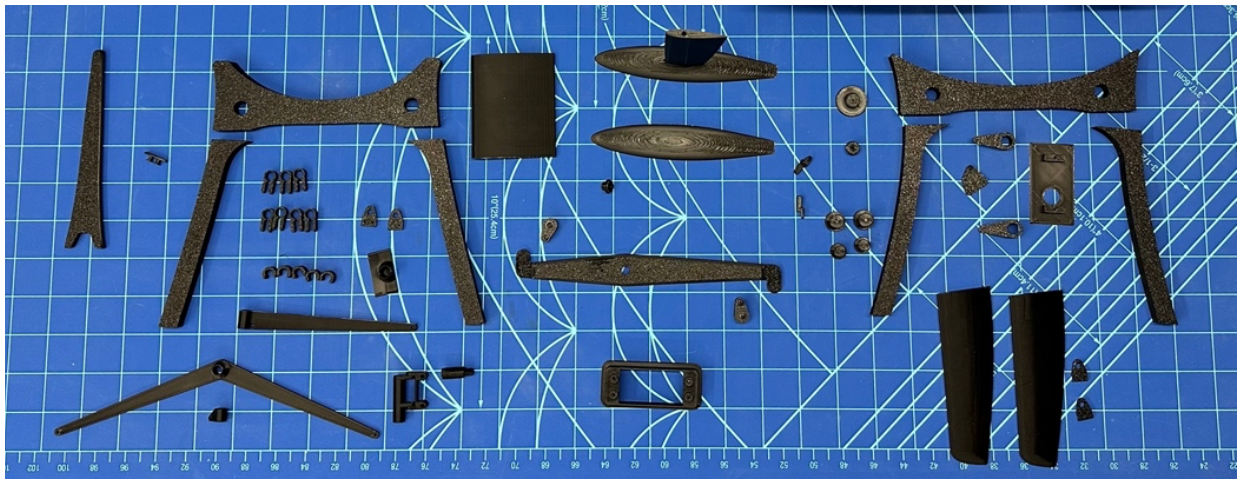
- 1) the hull is printed with a 0.8mm nozzle, LW-PLA, 0,4mm layer height, two walls and without infill.



As the hull sections are glued together flush and w/o registration pins it is very useful to locate the Z-seam in the middle of the underwater-ship. This helps alignment in the assembly a lot:



- 2) all remaining parts are printed in PLA or stronger material using a 0.4 mm nozzle, 0,2mm layer height and with additional walls for strength with 15% infill. Some parts may need supports.



ADDITIONAL PARTS & RC

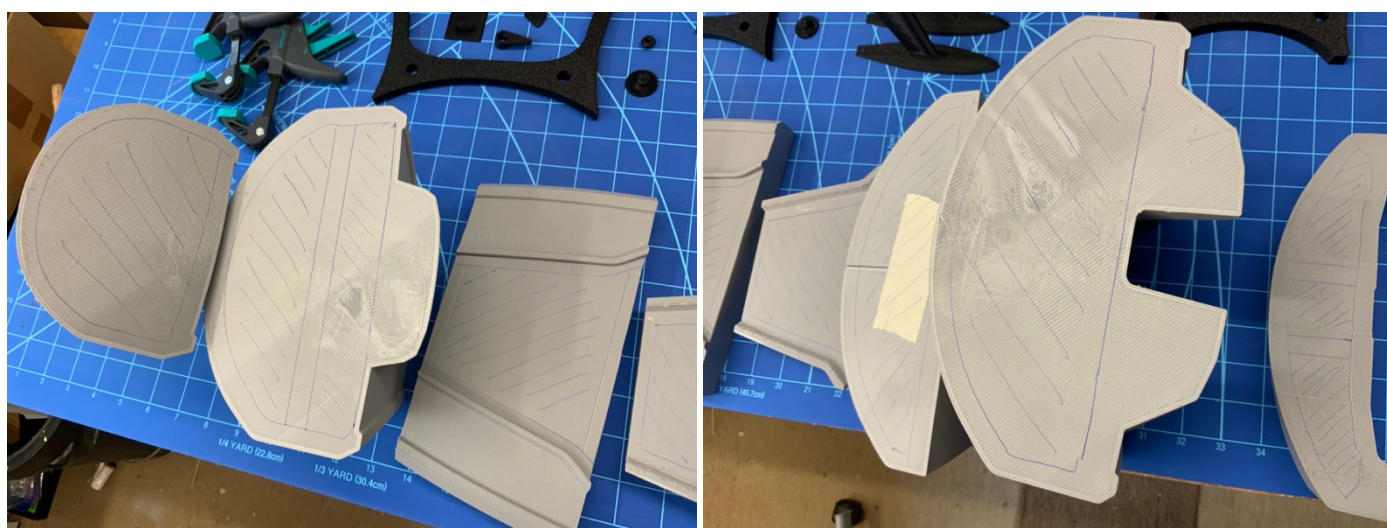
Besides the printables, the following parts are needed:

- Simple 2-channel RC transmitter/receiver system incl. battery
- Midi Servo for rudder, Standard Servo for sail adjustment, min. 20kg strength
- 6mm carbon tube for mast and booms
- Sheet line and 2 ball bearings 4x8x3
- Keel & Bulb from DF65, available as spare parts
- Sails and rig of a RG65-sized sailboat
- Stainless steel rod for rudder axis, aluminum tube as rudder stock

For parts- and supplier reference please also check the website www.boatprint.de/parts-and-ressources/

ASSEMBLY

STEP 1: The hull sections are glued together flush. Before gluing, cut out the inner portions of the top and bottom layers, leaving a 10mm flange as a gluing surface. Ensure all internal fittings are installed in each section before final assembly. Remove the hatched areas indicated here:



STEP 2: Start with section H1 (bow) and cut two holes for the forestay. Glue a backing piece under the deck from the inside to secure the forestay eyebolts. Glue H1 and H2 together, and install the mast base into section H2.

STEP 3: Glue together the lower left and right parts of H3, ensuring the centerboard case is installed at the same time. Install the servo mount on the left side of the keel, and cut a section on the right side of the keel for the battery and, optionally, the receiver. Alternatively, the battery can be placed in the stern.

STEP 4: Install a powerful standard-size (20kg) servo for sail control. Mount the servo arm and a ball-bearing block for the mainsheet. The mainsheet is attached to an eyebolt on a sheet post under the coaming on the right side. The sheet runs through a ball bearing on the sail arm and passes through a hull fitting next to the sheet post. Adjust the position of the post according to your servo's range of motion.

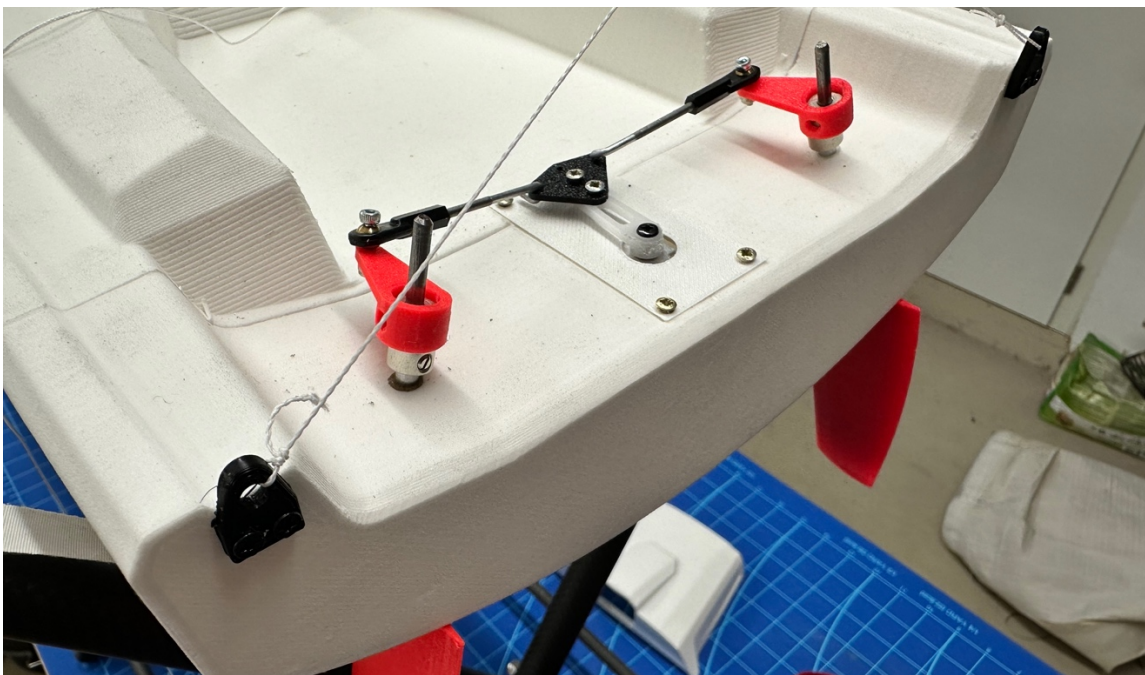


The jib sheet runs directly from the servo arm through a hull fitting in front of the mast collar. The receiver and battery can be placed on the right side of the keel box or as shown in the diagrams.

STEP 5: Glue together H2, H3 upper, and the two H3 lower parts (left and right). Then, install section H4 (cockpit). It is recommended to route the rudder servo cable at this stage, as it will be more difficult once the hull is fully assembled.

STEP 6: Install the rudder stock tubes in section H5 (stern), sealing them properly to prevent water leakage. Marks are provided for precise placement of the rudder tubes, which should extend approximately 5mm above the deck. The rudder servo is mounted on the servo plate, which is screwed to the deck at the stern. An opening needs to be cut into the deck, following the marked recess.

STEP 7: The rudder linkages connect the rudder horns (left and right) to a central rudder horn adapter, which can be mounted on the servo horn. The rudder horns should point slightly inward to allow for a greater turning radius of the inner rudder when steering.



STEP 8: Install the shroud and backstay plates on the sides of “H3 upper” and the rear. The bowsprit is glued into place, although it is non-functional. To make it functional, you may need to add a screw at the connection point and a small stay at the bow near the waterline.

RIG AND SAILS

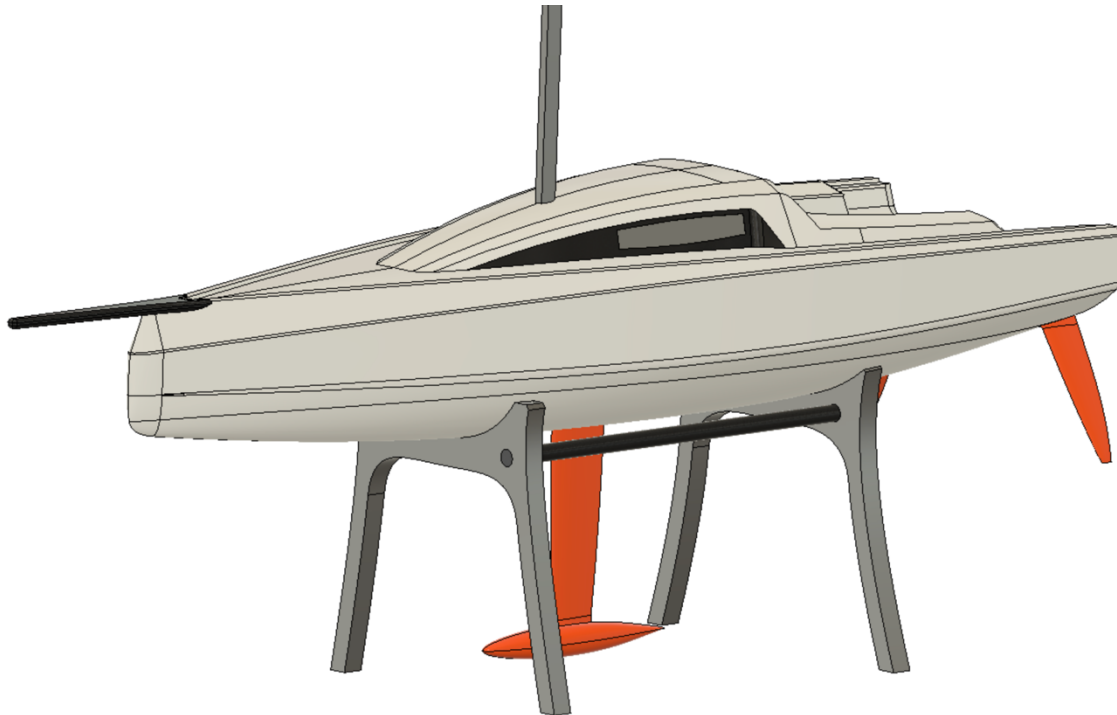
You can use the provided printable rig parts to build a custom rig using 6mm carbon tubes. Alternatively, you can use the rig from a DF65 or a similar boat, but note that the jib foot may not fit well with this boat's deck line. It is recommended to build a simple rig with sails shaped by panels or using a curved luff (leading edge) for proper sail profile. See the included pictures for an example of a simple rig setup.





DISPLAY

For display purposes, you can install scale versions of the rudders and keel. You can also use the included boat stand for display. Reference pins on the stand parts indicate the front, with the pins located on the forward-facing left side of the stand components. These parts are connected with 10mm tubes.



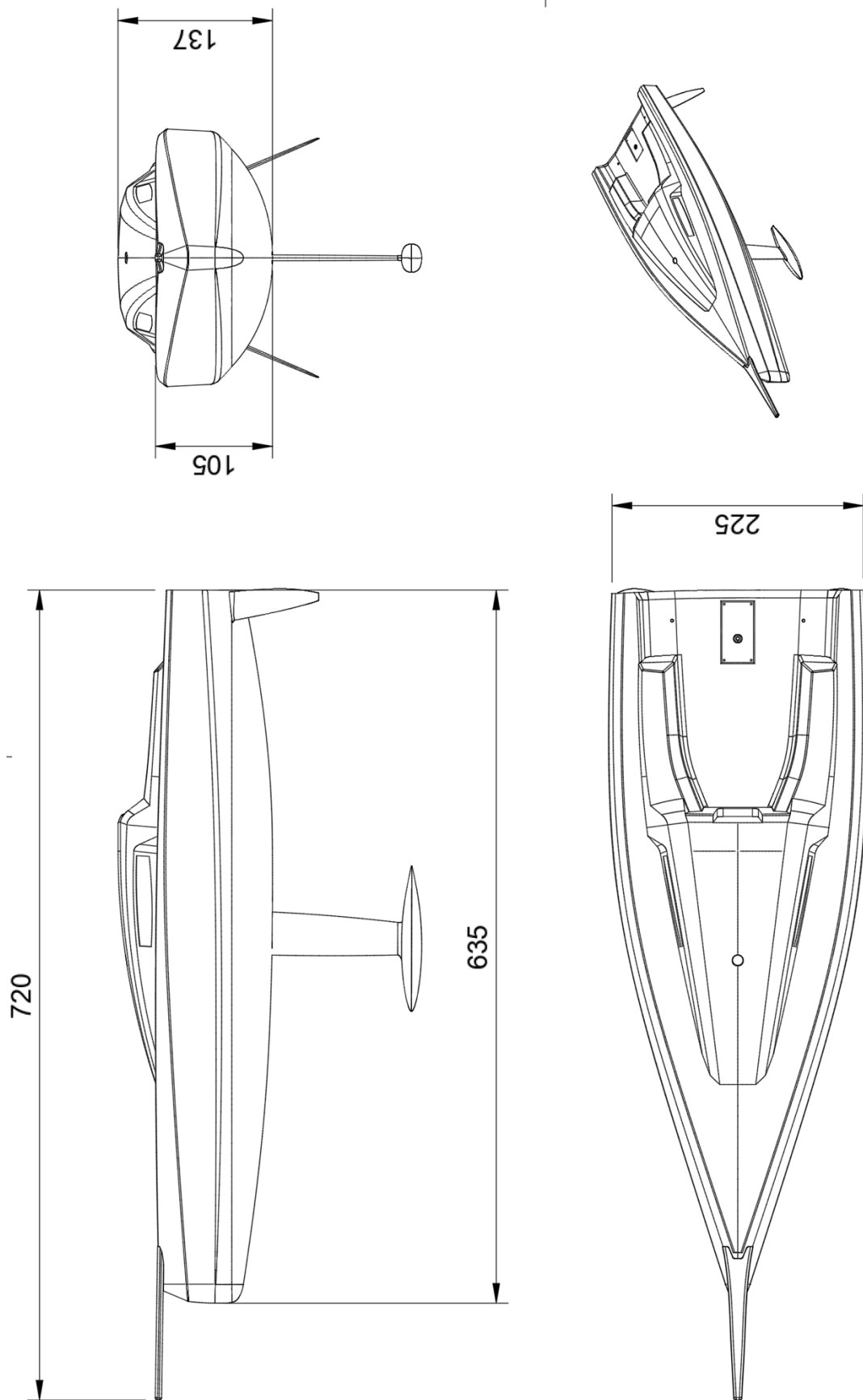
QUESTIONS & CONTACT

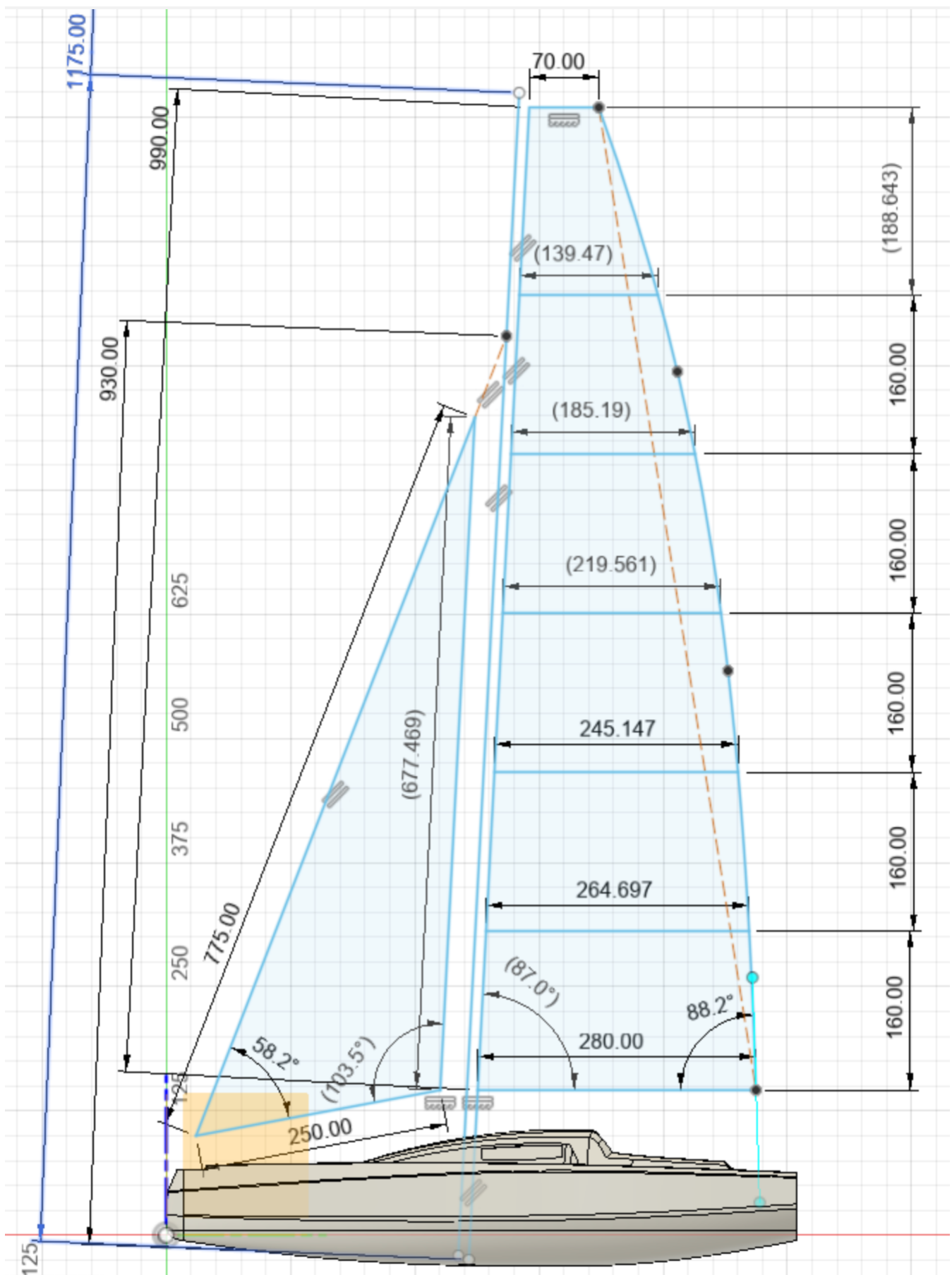
If you have any questions or find areas for improvement, please contact Chris Angelduro via the MESSENGER app. Feel free to share your build process, ask questions, and discuss modifications in the dedicated Facebook group.

THANK YOU for your interest and enthusiasm, and please refrain from sharing the files.

Chris Angelduro 10/2024

DRAWINGS





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

