

THE TRAPEZ SERIES OF RACING DINGHY CLASSES

1. TRAPEZ SENIOR Single-hander
2. TRAPEZ SENIOR Two-man
3. TRAPEZ JUNIOR Single-hander
4. TRAPEZ JUNIOR Two-man
5. TRAPEZ FUN-BOAT

I HAVE always wanted to make a boat in which I could enjoy myself more than I can in the Finn single-hander, and the competition sponsored by *Yachting World* really started me actually to produce such a boat.

When I was sailing the Finn in Denmark I was mostly alone and I did it mainly because I wanted to try to make the boat go faster, but I did not really enjoy sailing the Finn in strong winds because it is such hard work hanging out all the time. When you are racing in close competition you tend to forget to some extent the hard work of hanging out because you have other things to think about.

I have always been dreaming of sitting on a sliding seat while sailing a Finn. But then I realised that if you use a sliding seat on a dinghy it is difficult to move yourself fore and aft to alter the trim to give the right balance on various points of sailing. From having sailed in other classes which use trapezes I was impressed by the easy way one could adjust one's position on the boat to alter the trim for different sea and wind conditions.

This started me thinking about whether it is possible to sail a single-handed boat with a trapeze.

Therefore I built a simple, very shallow scow simply to see if I could stay on a trapeze while sailing alone—and straightway I found that it was quite feasible.

From that moment I started to develop the design for the Trapez Senior single-hander.

I used the experience which I had gained from having sailed all the other various types of International sailing dinghies to make this new Trapez Class, and I have been able to eliminate the disadvantages which I found in all these other classes.

The features of the Trapez Dinghy

The reason for making the hull so shallow and the freeboard so low was firstly to reduce the overall weight and secondly to reduce the windage as much as possible. Therefore I made it just high enough so that it is reasonably dry in average conditions.

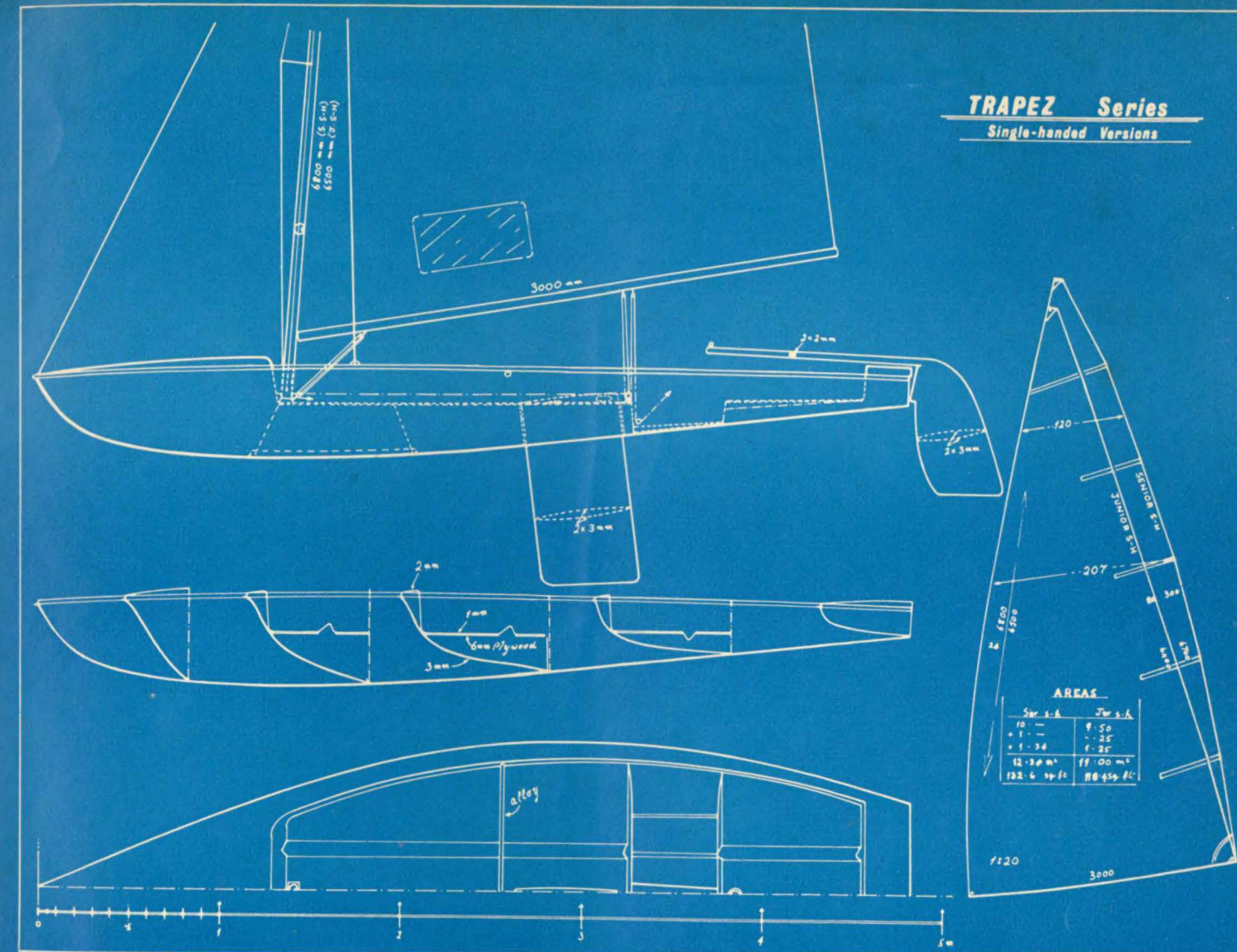
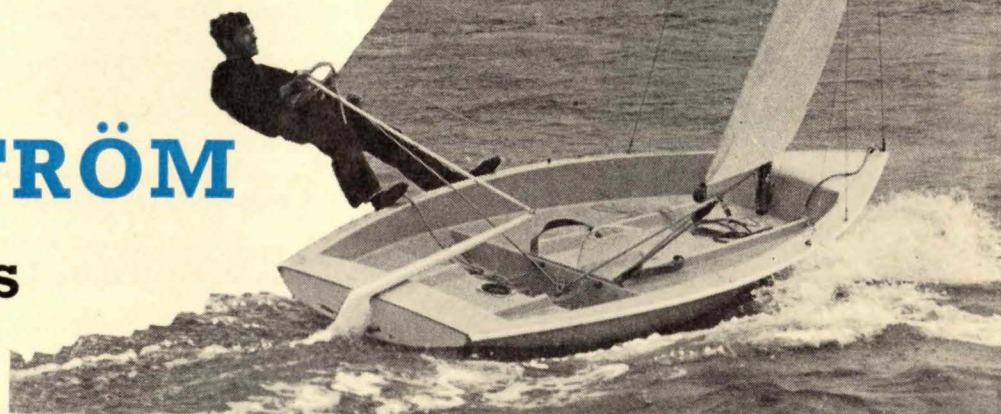
The shallow hull also has several other advantages.

Firstly, after a capsize, if you are thrown out, the hull does not float so high in the water that it blows away from you faster than you can swim. Secondly even if you are very tired after capsizing you can always clamber in because it floats so low. Also when you are capsized you will find that the low freeboard enables you to get very quickly on to the centreboard.

**PAUL
ELVSTRÖM**

**launches
the**

TRAPEZ CLASS



Here is the basic layout of the Trapez Class, showing the sails for the Senior and Junior single-handed versions. The run is absolutely flat, but relatively shorter than a Flying Dutchman's, for instance; the dagger board is far aft, to balance the single sail stepped well into the boat, instead of near the bows, as in a Finn. The prototype is being modified at the moment, but readers will be kept informed on latest developments.

Fourthly, the low freeboard enabled me to make the boat very light for fast sailing because the lower the freeboard the thinner you can make the hull. To make the hull extremely strong I made the double bottom and the side deck meet and touch the side of the hull.

After capsizing my idea is to get the water out of the hull as fast as possible and therefore I decided on a double bottom, but it is also necessary to have the sail plan as low as possible—and this means having the boom very low.

To be able to get underneath such a low boom I decided to make a small cockpit.

In the beginning I had an open transom, so that the water in the hull would clear itself immediately. But in light winds and when one was launching the boat and fitting the rudder, I got too much water into the boat.

Therefore I closed the transom and, to be able to put emergency buoyancy near the stern of the boat, I made a short afterdeck. Another incidental reason for the short afterdeck was so that one could reduce the length of the double bottom and thus also reduce the weight slightly.

One reason why I did not make the afterdeck any longer was because if it had been any bigger I would have had to make the top panel much stiffer and therefore heavier. Another reason was that I found that on a dead run or a broad reach I could sit right aft on the double bottom in a strong wind and feel very safe.

I made the foredeck as long as possible and it comes right back to the mast. This is because I wanted as much buoyancy as possible in the bow and also it makes the length of the double bottom as short as possible and hence gives a very light bow. This is the most sensible way of making the bow light.

The sheer line is a reverse curve because you need the greatest freeboard only in the centre part of the boat, because this is the part which is immersed more when you are heeling. It is also the place where you are standing when you are on the trapeze.

The centreboard which is made in reinforced plastic is of the dagger type because this is the fastest type of centreboard. If I had used a swinging centreboard its area when half-raised would be too close to the rudder since the position of the centreboard in this design has to be very far aft for beating to windward.

At the same time this type of centreboard saves a lot of money because there are no fittings at all and the centreboard case is short and simple. There is also no need for rubber sealing at the keel because the board is a tight moulded fit in the slot.

I have found that it is very seldom during racing that I need to lift the tiller; therefore I decided to make the rudder and the tiller in one piece out of reinforced plastic. I

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TRAPEZ CLASS

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took advantage of making the rudder and tiller in two halves out of reinforced plastic so that I could put the rudder pintles inside the rudder during assembly. I decided to make the tiller extension elastic so that it would never break. And because the tiller extension is flexible, I am able to use only a single screw to fix it instead of a universal swivel joint.

All this saves money as well as weight.

The Ideas Behind the Class



I decided to make the boat with aluminium spars so that it would be possible to tune every single boat to be exactly the same. I have tried four different standard sections on the single-handed version, and many different arrangements of rigging.

My idea with this class is that I should tune it so that it is so fast that it must be very near to the maximum possible speed. No one would be able to make it appreciably faster and therefore I am able to produce an absolute standard set of gear and only this gear is allowed to be used with the boat.

It is not necessary, and indeed it will not be allowed, to use any other type of gear—and there will be no need since the boat will go almost no faster what ever you do. This is the only way to make the cheapest possible racing boat. It seems to me that the existing boats are terribly expensive, and the Trapez series will be amazing value for money in comparison.

When I saw how effective was the hull as a single-hander I decided also to try it out as a two-man boat. And then I thought that if a single-handed helmsman can stay on a trapeze on this boat easily, why not try it with the helmsman and the crew of a two-man version on trapezes in strong winds.

I tried it like this and found it tremendously fast in strong winds.

I decided, with the two-man version, not to use a spinnaker but instead to boom out the genoa. This is because if you hoist a spinnaker you are unable to use the genoa effectively on a dead run.

On a reach you do not need a spinnaker because the boat travels so fast, and the apparent wind comes so far forward immediately.

I made six boats for test purposes and, to start with, I broke a large number of things on the boat because I wanted to see how light I could make every part without it breaking. This was the only way to be certain that I was not putting a lot of unnecessary weight in places where it was not needed.

Moulding the hull, the centre board and the rudder is a very simple operation but in most boats it costs a great deal of money to fit the hull out. Therefore I have reduced the number of fittings to the absolute minimum by designing the whole boat to eliminate fittings and hand work.

Because the weight of the hull is also 85 kilos I found that using a trailer was unnecessary and it is easily possible for two men or even for one man to put it on the roof of any car. I have designed a special roof rack.

After having made these two classes for experts I thought that it was rather a shame that the average dinghy racer would be unable to take advantage of such cheap and simple classes. I decided also to make versions with smaller sail areas of both the single-hander and the two-man boat.

It can be said that the smaller version of each type is a very good trainer for the senior version, and both are also extremely fast and exciting to sail.

All four versions need different masts and sails but they all have the same boom. However, the hull and fittings are absolutely identical for all four versions.

Another idea was that I wanted new owners of any of

these versions to join the class without wasting a lot of time tuning the boat. I wanted to be able to sell the boats absolutely fully tuned. This is really the only way to obtain fair racing.

In other words it will be the same as the rules for the Olympic Single-handed Class as it was arranged at Torquay, Helsinki, Melbourne and Naples and you cannot alter any part of the boat. In the Trapez Classes you will only be able to adjust the diamonds and the jumpers so that you can vary the flexibility of the rig to suit different weights of crew.

The sails will be made as nearly the same as it is possible to make them. Each sail in each class will have a different sail number. Therefore when an owner enters a race he can enter only under one sail number, and that means he can only use one sail.

This will help to reduce the costs of keeping a top racing boat, both because it will discourage owners from owning more than one sail and also because I can make the sails much cheaper if I can put the sail numbers on to the sail while it is being made and I can then ship sails anywhere in advance. At the same time any number of sails can be kept in stock, and they can be delivered from stock.

In other words an owner need only buy a new sail when his existing sail is getting too old. The main idea of this sail policy is to reduce costs and to simplify racing and control.

Another idea is that clubs and associations can own hulls, and not be afraid that they will become out-of-date or be non-competitive, because they are all absolutely identical. The only problems with these classes for the owner will be the handling of the boats on the water and the tactics during the races and this will make the racing in these classes the most enjoyable possible. I feel that the enjoyment of a race should not depend on having to spend a lot of money and also spending a lot of time tuning a boat.

The Control of the Boats



The hulls will be made in various places in the world but the builders will be licensed by the class organisation. The sails will all be made by one sail maker and the fittings and spars will all be made by one factory. My factory will make the moulds for the hull and the rudder and centre board and these will be lent to the licensed builders in various parts of the world.

Therefore if the quality and the price of the hull is not satisfactory, I can ask for the moulds back and lend them to another suitable builder.

The class organisation will look after the promotion of the class and will also take care of the main area championships, and in every way possible they will try to make the class a really exciting one to join. The class organisation will control all four versions of this boat.

The hull does not have to be measured because the shape is rigidly controlled by the moulds and the method of construction and you can easily see with your eye if someone has tried to change anything.

The reason why I am sure that all the boats will be exactly the same shape is because a dry deck is fitted into a wet hull while the hull skin is still in the building mould. In this way the whole rigid hull is removed from the mould after it is completely assembled. Lead corrector weights of about 3 kgs. are built into the hull originally, and these can be gradually removed as the boat takes up weight. Therefore the hulls can always remain exactly on the minimum weight.

The only control to be made at a regatta is the total weight of the hull and gear. The sails will be sewn with a special coloured thread so that it will be easy to see if they have been altered.

It will be possible for an owner to complain to the Class Organisation if he finds that any part of his boat is different from any one else's. The owner will have to claim first via his National Secretary and if he is not satisfied with the decision then he can have his case sent to the International Class Claims Committee via the General Secretariat.

To form a class organisation so that I was sure that it

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Paul ELVSTRÖM'S Racer . . .

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would work I contacted Richard Creagh-Osborne to help so that there are two of us who both have had a very long experience of various types of class organisational systems and have been actively concerned with developing class organisations and class rules.

Richard Creagh-Osborne will be general secretary of the class. He will organise national secretariats in all countries and this will be easy for us because we already have contacts with the chief racing people in every country in the world.

I would like to point out that the control systems of all big international classes today have become terribly complicated and therefore they are so expensive and time consuming. In the Trapez series of classes we have reduced all this to the absolute minimum.

Another weak point of almost all the existing international class organisations is that the communications within the class are very bad. We have solved this by making the General Secretariat and the National Secretariat a paid job so that members are absolutely certain of having letters and enquiries answered.

The price of the boat will be fixed and any variation will have to be agreed first by the class organisation and finally with the I.Y.R.U. if they decide to control any of the versions of this series of classes.

Because of the feasibility of mass production and complete standardisation it has been possible to keep the price of the boat very low and at the same time make a good business for the people who are producing and promoting the class. I feel that these last two ideas are essential to a successful class.

The prices of the boats complete except for trapeze-harness are as follows:

Ex-factory, Denmark (Boats built elsewhere may have slightly different prices)

Trapez Senior (Single-hander)	£243 10s.
Trapez Junior (Single-hander)	£233
Trapez Senior (Two-man)	£285
Trapez Junior (Two-man)	£259
Trapez Fun-Boat	£207 10s.
Trapez Harness	£5 5s.

These prices are considerably cheaper than comparable boats on the market today and they include marketing and class organisation costs. There will be no extras with any of these variations of the boat except that a special roof rack to fit all cars will be available and kept in stock at each depot.

There will be a small once-and-for-all registration fee for racing crews only. Only registered crews may race in official regattas. It is not necessary for crews to own either a boat or a sail and they can make private arrangements to hire or borrow the equipment. The class is not interested technically in who owns each boat and sail since they are identical. Each hull and sail will have a serial number however, for identification and reference.

Basic Statistics (Single-handers)

Length of hull	15 ft. 11 in.
Maximum beam	5 ft. 5½ in.
Weight of hull	187 lb.
Weight all-up	253 lb.
Length of mast: Senior S-H	23 ft. 9½ in.
Junior S-H	22 ft. 9½ in.
Length of boom	9 ft. 10 in.
Sail area (actual): Senior S-H	132.6 sq. ft.
Junior S-H	118.4 sq. ft.

Integral rudder and tiller of hollow plastic moulding.

Centre board—Two-piece hollow plastic moulding.

Tiller extension—Flexible plastic.

Mast and boom—Aluminium alloy.

The hulls are identical for all five versions.

■



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