

Laser 4000 V/S ISO

Review category

- Asymmetric double handers with single trapeze
- Wind speed: 12-15 knots

Photography: Emily Brown



These single wire asymmetrics helped revolutionise high performance sailing for lightweights when first launched over a decade ago. Despite modern developments, both have stood the test of time. But how do they stand up to each other? We went afloat to find out.



ISO

Designed and launched in 1993 from the drawing board of Ian Howlett and John Caig, Topper's ISO was a groundbreaking dinghy for the time. The ISO introduced many sailors to the affordable joys of fast asymmetric sailing. The Class Association works to maintain and increase the strength and popularity of the class. The class benefits from an active racing circuit, including a bi-annual fixture at Lake Garda, and although the fleet does not attract numbers like those of the Laser 4000 the racing is friendly with a laid-back style that makes protests almost unheard of!

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Laser 4000

First built three years after its big sister, the Laser 5000, the Laser 4000 was immediately popular with lighter crews who could not handle the Laser 5000. The high performance sailing offered by the boat attracted large numbers in its first five or six years, but then the introduction of the Olympic class 49er and other lightweight skiff-like dinghies caught the eye of many. However, there is still a large following loyal to the class, and a very active event (and social) calendar. The low maintenance cost of the boat attracts many younger people to the class.

The **review** team

Andy Palmer-Felgate
Weight: 65kg
Height: 5'7"



Has been sailing Laser 4000s for five years.

Nick Alp
Weight: 76kg
Height: 5'9"



Seven years competitive Laser 4000 sailing, coming third at the European Championships this year.

Andrew Gould
Weight: 82kg
Height: 5'9"



Andrew has been sailing the ISO for ten years and is an ex-National Champion of the class.

Vicki Gould
Weight: 60kg
Height: 5'3"



Sailing with Andrew for ten years competitively in the ISO, Vicki is also an ex-National Champion of the ISO fleet.

Onshore next to each other the ISO and the Laser 4000 look very similar in size, length and beam. The only difference upon first sight would be the optional solid wings on the ISO, and the adjustable racks on the Laser 4000.

The group thought that both boats were very similar when manoeuvring and launching. Even when the Laser 4000's racks are fully extended and the ISO has the wings in place, neither is difficult to move around. Andy thought that "The 4000 is probably slightly heavier and it's probably about 20cm shorter, but still not hard to move." The others agreed with this statement, and the builder statistics confirm that the ISO is the lighter boat by 12kg.

However, one difference that Andy noticed was that the Laser 4000 has the easier rudder system with the traditional tilting blade, whereas the ISO has a kick-down system. He asked Andrew how effective this is and Andrew replied; "Although it is easy to use, it needs to be tied down to prevent it popping up by accident, which adds another stage to launching." Andrew added; "From 2005 the ISO class rules have allowed any rudder system, though no-one has bothered changing it, so maybe it's not that bad!"

The whole group agreed that prior

to launching, the rigging of the boats was very similar. However, a few key differences were exposed. Andrew said, "The ISO has a mast gate which means it can be rigged by one person." In contrast, the Laser 4000 needs another person to hold the mast whilst the shrouds are attached. Nick also pointed out that the only other rigging issue on the Laser 4000 is the spinnaker pole 'wing-wang' system, and Andrew added that, "After it has been rigged once, you hopefully shouldn't have to do it again."

With sails hoisted both boats have fully battened main sails, something to keep an eye on when launching as you have to control the boats carefully. However, our test team did not have any problems with this, or any trouble getting in and out of the boats with the racks and wings to negotiate.

Sailing and performance

Once launched and out in to a bit more open space the crews were able to show off their skills in their own boats before swapping. There was a little debate about which boat was the faster. On paper, the Laser 4000 has the lower PN but also the smaller sail area. Andy said that, "Sailing in a straight line the Laser 4000 is significantly quicker for me. The sail is quite flat and the boat seems to have less resistance in the water and sails, it just feels a bit

more responsive and when there is a gust the boat tends to accelerate better. Whereas on the ISO the sail shape varies from being a really deep sail to a very flat sail and you can do an awful lot with the rig to depower it. In some ways the rig on the ISO is more versatile." Nick agreed that the ISO rig felt more 'elastic', and sail and rig alterations were more receptive than the Laser 4000. Andrew agreed with both Andy and Nick saying, "The ISO sail is generally too full and you end up whacking on massive amounts of cunningham to flatten it off, but you can get it completely flat by bending the mast. We never let the cunningham right off in the ISO, and have crinkles up the mast."

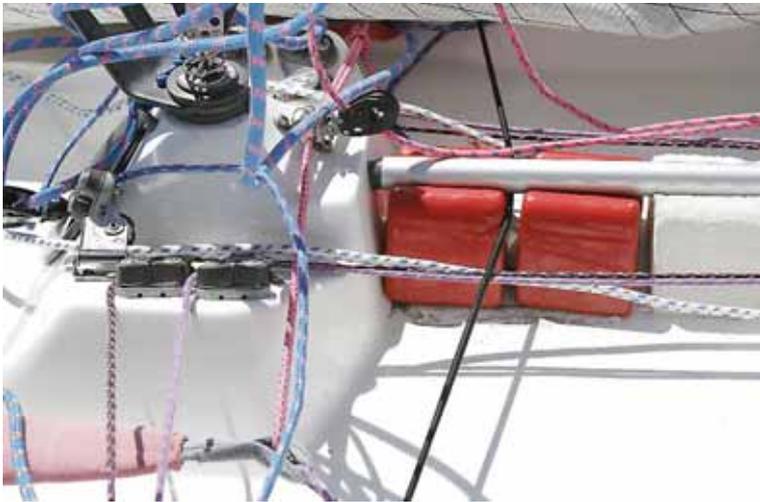
The speed debate was settled with Nick thinking that; "The overall boat speeds are almost identical, I found that downwind there is nothing in it." However Andrew thought that; "In light winds the ISO is slightly faster as it has the slightly bigger rig, but in strong winds I think the 4000 has the edge."

Andy and Vicki agreed with the responsiveness of the Laser 4000, and its better acceleration in the gusts, particularly downwind. This is due to the Laser 4000's longer bowsprit. However, Andy added that, "I think the ISO has a bit more momentum to it, going through the lulls a bit better."

With Nick and Vicki crewing both boats, both commented that the trapezing and sitting position in the boats is very different. Vicki said that; "This has a lot to do with what you are used to, and if I had always sailed a Laser 4000 I'm sure I wouldn't have had any problems." Vicki's ISO trapezing technique is to hook on before going out on the wire and therefore she naturally sits down, yet the Laser 4000 requires crews to be on their feet a lot more. Nick thought that the ISO offers a relatively stable platform for going out on the trapeze, and that the whole boat generally felt steadier in a straight line and through the corners. Both Andrew and Andy, helming the boats, felt the sitting and hiking position was very similar, and neither was uncomfortable or difficult to get into the correct place. ▶

Statistics

	Laser 4000	ISO
Year of design	1995	1992
Length (m)	4.6	4.7
Beam (m)	1.5 – 2.3	1.7 – 2.2
Weight (kg)	107	95
Rec. crew weight (kg)	120 – 180	130 – 170
Main (m²)	10.8	10.0
Jib (m²)	3.9	5.0
Spinnaker (m²)	17.1	21.0
Trapeze	1	1
PN number	908	926
Builder	Laser	Topper International
Crew	2	2
Construction	GRP foam sandwich	Foam sandwich
Racks/wings	Racks	Wings
Class Association	www.laser4000.org.uk	www.isoracing.org.uk





Boat handling

Some major differences between the two boats were revealed in their handling.

Nick said, "The major difference has to be the height of the boom; it is so much lower in the ISO. You've got to get on your knees! I was getting my back caught on the boom, not able to get it low enough!" However, ISO crew Vicki was having the opposite problems, "Whilst you were finding it difficult on your knees in the ISO, I was finding it difficult going through manoeuvres standing up on the Laser 4000!" This draws attention to the different techniques required for sailing each of the boats.

Andrew highlighted that; "Tacking is easier in the ISO as you don't get stuck in irons. The problem with the Laser 4000 is that you have to pull the jib in quickly; if you don't you can

get stuck. Whereas in the ISO you can get away with anything, because it has that little bit more momentum through manoeuvres, compared to the Laser 4000 which slows down a lot." When it came to gybing, the helms both agreed that there was hardly any difference apart from the wing-wang. This system allows the spinnaker pole to be canted to one side in light winds, so a deeper angle can be sailed. Andy said; "This can be another complication when sailing sometimes. It is nice in light winds as you can swing the pole back and sail a lot deeper that way, but when it is windy pretty much everyone sets it in the middle the whole time, and you just have to remember to let it off when you drop the kite." The entire group agreed that this could pose problems if forgotten about!

Our crews did not have any problems hoisting or dropping either boat's spinnakers and gybing seemed to go smoothly. Vicki commented, "In the ISO, Andrew pulls up the kite, so when I had to hoist the Laser 4000 spinnaker I was unsure of what position to stand in. But saying that, the spinnaker was not heavy or hard to pull up." Nick added; "I thought the loads on the kite uphaul and downhaul were actually a bit higher in the ISO, but on the other hand I thought the sheet loads were lower." The group decided that this could be due to the cut of the ISO kite, which has a higher aspect ratio. Nick thought that trimming the ISO felt easier, but said that it is a very small difference between the two.

Coming out of tacks and gybes, Andy observed that the ISO allows slightly more time for the crew to come out of the manoeuvre. "In the Laser 4000 the power is instantly on, whereas because the ISO rig is a bit more elastic it powers up gradually, which gives you a bit more time." Vicki agreed with this; "Coming out of a gybe the Laser 4000 spinnaker filled very suddenly and flew off, whereas in the ISO you can feel the power coming on slowly and you bear away and accelerate and then you're in control – I didn't feel that as much with the Laser 4000."

Layout and control lines

Whilst both boats are minimalist and aim to have a tidy layout, the ISO is probably the more 'rope free' of the two, without the wing-wang lines. However, that said, the traditional kicker on the ISO, as well as the lower boom, further limits the space for the crew when crossing the boat, whereas the Laser 4000 'gnav' creates much more space. Yet the Laser 4000 also sports lower shrouds, which adds another dimension to rig set up, as well as making it trickier for the crew to

move around comfortably in front of the mast in light winds.

The kicker and cunningham control lines in the Laser 4000 are both led up on to the trampoline on the rack. Nick said; "This means neither helm nor crew have to lean in to the boat to make an adjustment. Whereas on the ISO, the cunningham is in one place and the kicker is in another, but I suppose they still both come out to the side but not onto the wing." Andrew replied that he thought the kicker could be easily pulled on and released in both boats, but thought the Laser 4000 cunningham was occasionally hard to let off, due to having no elasticity in the release.

Whilst discussing the layouts of the boats, the topic of durability was raised. Both being strict one-designs, there have only been a few small modifications to design since the boats were first built. Vicki said; "We have an older ISO and it is still very competitive and robust." Andy said that this applied to the Laser 4000 as well; "In terms of build quality the 4000s that were built ten years ago, like the one we were sailing today, are still competitive and they still tend to last as a boat and a design." Nick added that this robustness extended to the sails as well as the boat itself; "The main sail lasts really well, and the only thing that you probably would do every two or three seasons if you really wanted to stay competitive, is replace the jib as they tend to get a bit stretched along the foot." Andrew said the same about the ISO sails, and that the things that end up breaking eventually is more likely to be something like the eye fittings rather than the cloth itself!

Capsizing

Of course the nature of the boat test and the hot summer weather of the test day meant a capsize was necessary. Regular Laser 4000 ▶





sailor Andy was surprised that he could right the ISO very easily without help, whereas he cannot solely right the Laser 4000. He thought that this was mainly due to the hull shape and the rig rather than the weight of the boats.

Nick thought that the ISO floated higher in the water when capsized compared to the Laser 4000 and was not inclined to turtle as easily, but whether this had anything to do with Andy being able to right the ISO with more ease was not decided upon!

Amongst the group all thought that in both boats, climbing onto the daggerboard over the wings or racks does not pose a problem, and recovering the spinnaker from the water is also not an issue, as long as the Laser 4000 wing-wang is not forgotten!

Once righted, both boats drain efficiently, yet Andy commented, "When the ISO is upright it seems more stable, as although both boats have fully battened mainsails the Laser 4000 tends to generate more power when it's not sheeted in. The ISO is more like a conventional boat in that it does not try and sail off as

soon as the boat is upright."

Weight equalisation

As with all dinghies there is a recommended crew weight, yet with both boats this spans a wide bracket. Everyone agreed that these are not the sort of boat where you have to have a heavier crew or worry about being too light for the boat.

The Laser 4000 has a weight equalisation system that consists of a matrix of combinations of rack positions and lead weights that can be added to the boat. Nick explained that; "The Laser 4000 probably has one of the most graded systems in terms of weights and racks and it does work very well in the fleet. At Lake Garda and at the Nationals, there were two small girls in the top five as well as a 105kg man. Every combination works really. I think that this is a genuine advantage of the fleet. The system makes no difference to handicap racing or joy-riding but I think in the fleet it makes everyone feel that it's down to their skill and experience rather than that they just happen to be the right weight."

On the other hand, the ISO has a



much simpler method with the wings, which can be detached. Vicki explained, "You can either have them on or off, and there are no other weights to put in or take out." The wings weigh about 15kg and when racing, if the crew is over 78kg the wings are not allowed. Andrew added, "Heavier crews therefore save on the 15kg weight of the wings but lose some leverage." It was concluded that overall the separate weight equalisation systems do work within their class, as shown by a very varied weight range of people getting results at both class nationals.

Final thoughts

Andrew

"...I have sailed both the Laser 4000 and ISO competitively and it is very difficult to choose between the two. Both classes have good racing and trips to Lake Garda. However, the ISO is such a joy to sail in the lighter winds, and it means we can do well in handicap racing..."

Nick

"...I think that the Laser 4000 is a bit more uncompromising in the sense that you wouldn't buy one if you just wanted to have fun and potter around on the water. It's definitely for racing, although having said that I think both boats could suit anybody who is looking for a single trapeze asymmetric, there are just differences that in time become second nature..."

Andy

"...I think the main difference is that the ISO is so much more forgiving in so many ways including tacks and with the spinnaker and even on shore it is a bit easier to move around. Therefore it is probably more suitable for club racing and people who want to go out sailing but don't want to really fine-tune their techniques to be able to handle the boat. Whereas the Laser 4000 is slightly more challenging, and because acceleration is better it is a bit more exciting, although speed wise there is not much in it..."

Vicki

"...We have a lot of young people that come into the ISO fleet, and there are actually quite a lot of events, as well as club racing. The circuit is not as big as the Laser 4000, we don't get as many boats by any means, but it is such a friendly class..."





Right to reply

Bob Ladell, ISO Class Chairman

Many thanks to both crews for taking time out to do this comparison with Dinghy Sailing Magazine. It is excellent to have the current ISO European Champs and Laser 4000 National Champs as part of the test team on the water – far more expert than me!

The ISO is a superb boat which fills a unique slot in that it offers very effective displacement sailing in light winds - you can almost match the point of a symmetric boat downwind - as well as being thoroughly exhilarating right up the wind range to as brave as you wish to be. As the crews noted, the highly controllable rig – “elastic” conveys the wrong impression – enables it to be powered to the right degree to match crews’ abilities and conditions. It is a highly robust boat, taking serious punishment from novices and/or weather month after exhilarating month.

This controllability, taught in our Class Coaching courses and through the Pro-Am matching at events, enables all mixes of age groups and physiques to sail together and enjoy a superb race circuit organised by

the class volunteers; combining quality family time with good sailing in excellent venues like Garda, La Rochelle, Isle of Sheppey, Weymouth, Restronguet, Draycote, King George – to name a few.

As the crews noted, the Laser 4000 sheet loadings are a little higher, perhaps suiting the more physical sailors. There is clearly opportunity to run more inter class events with the Laser 4000 and other classes, presenting a well-rounded set of asymmetric fleets to suit all.

To this end our calendar is becoming more Multi-Gala oriented, adding to the interest for everyone in all classes. We’re all real people with day jobs - just like you. Come and join us in the best bangs for your buck on the water!

We are looking forward to working with a new Licencee in the near future, enabling the class to really promote the fun of asymmetric sailing. We hope to have some important announcements to make very soon – and present the benefits at the Dinghy Show 2007. Keep watching this space.

Hugh Watson, Laser 4000 Class Chairman

It’s very interesting to read a comparison between these two boats which on paper are very similar but are so different visually.

The designers and manufacturers of both boats have clearly done a good job in providing durable, low maintenance boats, which structurally have stood the test of time.

Having never sailed an ISO myself I was intrigued to see that the differences found fitted exactly with those you would expect from looking at the boats, the most obvious of these being the high boom and gaff system of the Laser 4000 which were noted provide a great deal of extra space for the crew to work in. Also the sophisticated rack style weight equalisation system on the Laser 4000 has done so much to allow crews of all shapes and sizes to compete equally with each other.

I think the findings of the test team when sailing the two boats that the Laser 4000 feels more responsive and less forgiving reflect the fact that the boat was conceived as a thoroughbred skiff style racer and that it is this fact that has helped maintain the size and standard of the fleet over the years.

Clearly both boats now offer excellent value for money and as this report doesn’t show either as having any particular vices I’m sure they will give a great deal of pleasure to crews looking for low cost, low maintenance asymmetric dinghy racing. **DSM**