

McLaughlin's Definitive Guide to Optimist Racing Foils

by Lucas Kindervater



This article applies to the top 5% of all Opti sailors, and is intended as a guide to highlight the differences in the modern Opti race blades. Today's Opti racers have more choice than ever before when picking a set of blades. This guide should help you make an informed decision when buying a set. All blades will have a manufacturer, model number, year of manufacture and serial number under the epoxy on the upper part of the rudder and daggerboard.

Who are the Manufacturers, and how can you tell them apart?

DSK- DSK's are made in Greece. They make a single type of rudder that they pair with 3 different types of dagger boards. In descending order from stiffest to most flexible: the Dynamis, the Exelixis, and the Flexis. All of their blades are wet sanded to 600 grit below the waterline.

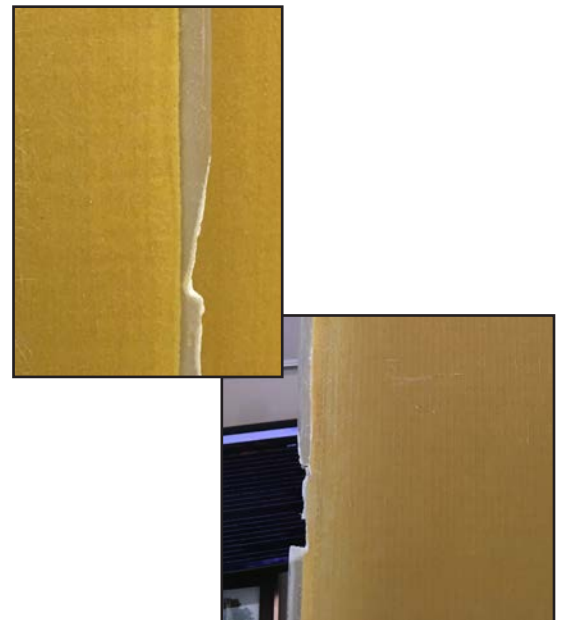
Optiparts – Optiparts epoxy race blades are made in Poland. These are the workhorse blade of most clubs and learn to sail programs as they are the most durable blades money can buy. They also make an exceptional race blade as they measure up as the stiffest blade on the market.

N1- N1's are built in Spain. These are the most popular blade on the race circuit. N1 blades have traditionally struck an excellent balance between durability, good shape, stiffness, and finish. In 2017, N1 changed the shape on the trailing edge of the daggerboards, making it easy to distinguish between earlier and later blades.

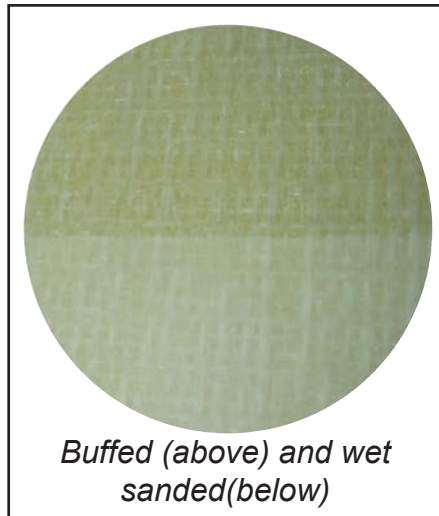
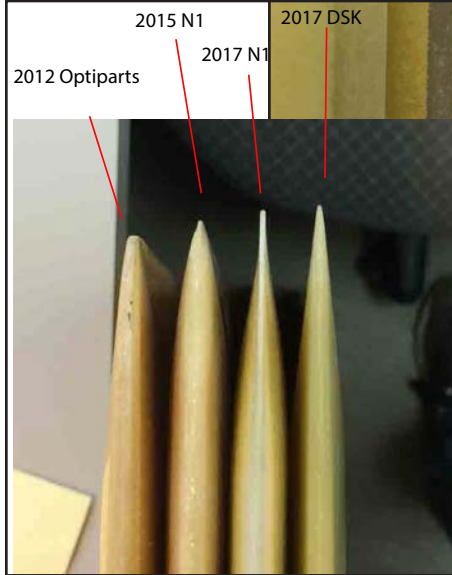
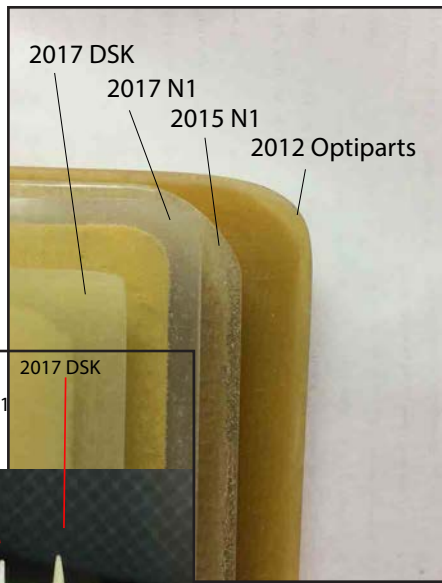
What to look for in a new set of Blades?

Materials – All of the IOD95 legal boards on the market use the same laminate schedule. The class rules are very tight in the Optimist so manufacturers have to distinguish their blades in different ways from the competition. The main ways these manufacturers set themselves apart is through shape, finish and stiffness. The class rules state that epoxy fiberglass daggerboards and rudders must use non colored epoxy resin, a non-absorbent closed cell PVC foam of 13mm and a mix of 100 mat, 280 woven and 600 unidirectional fiberglass.

Durability – As the largest optimist charter company in the world, McLaughlin gets to see 300 blade sets go through the regatta circuit each year. The opportunity this provides for product assessment and feedback is unmatched. The current trend featuring very sharp trailing edges have led to new maintenance issues. At the 2017 North Americans, the fleet of 150 boats was split between 50 sets of 2017 DSK Dynamis and 100 sets of 2017 N1's. On inspection after the regatta, nearly every set of DSK's needed chip and scratch repair work, while only 10% of the N1's needed repair. Both DSK and N1 were featuring the new trailing edge shape. Why such a discrepancy in repairs needed? As a contrast, the 2016 North Americans were supplied with 150 N1 blade sets, with the older trailing edge shape. Of the 150 N1s, only a few needed repairs. Optiparts blades are the workhorse of the Optimist fleet, seeing many regattas, year after year, and rarely needing any repairs.



Trailing corners (right) and trailing edges (below). 2012 Optiparts blade for comparison.



Buffed (above) and wet sanded (below)

Shape – The class rules on shape are very tight but there are some differences between the manufacturers.

- DSK maximizes the length of the daggerboard and went to a more aggressive trailing edge while having sharper corner edges instead of rounded corners. This is designed to make a more efficient foil. The drawback of this design is less material in the fragile trailing edge and bottom of the foil.
- Optiparts went to a new CNC'd aluminum mold in 2016 that solidified the blade consistency. Their philosophy is to build the fastest, most durable blade. Their trailing edge shape isn't as thin or aggressive as the new DSK's or N1's. This thicker trailing edge shape is the most durable of the three blade manufacturers.
- N1 changed the trailing edge shape of their blade in 2017 to be thinner and sharper. The corners on N1 blades still retain the classic rounded shape, and are more resistant to grounding or impact.

Finish – We have discussed blades being wet sanded or buffed. This refers to the finishing of the blade, or the work that gets done to it after it comes out of the mold. Most blades require some sort of finishing once they leave the mold. This means sanding the blades and then either buffing them to a mirror finish (the equivalent of wet sanding to around 2000 grit) or leaving them sanded. Both options have advantages and disadvantages.

- **Buffed**- A buffed blade has a mirror finish and a smooth feel to the touch. Buffed blades are harder to maintain cosmetically, as small scratches will show on the mirror finish. However, a buffed blade has sealed epoxy pores, and won't trap dirt particulates and residue that may be in the sailing area.
- **Wet Sanded**- A wet sanded blade has had 600 or above wet/dry sandpaper used on its surface. This is designed to increase friction with the water, and therefore improve lift. However, a wet sanded blade may trap dirt particulates and residue, which may increase drag.

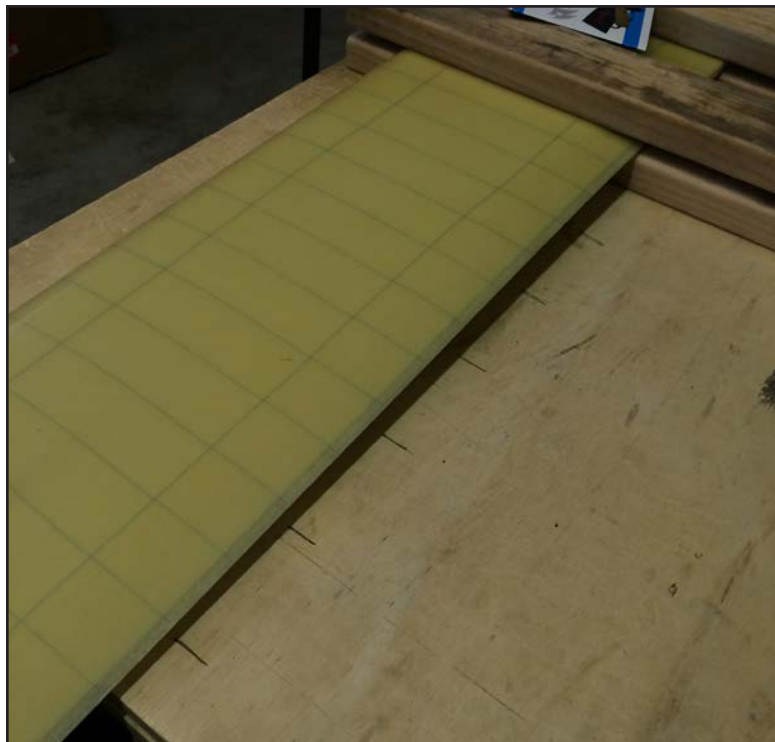
Fairness–Fairness refers to the straightness of a blade and the evenness on both sides. All the major blade manufacturers now produce blades that are very straight without any lumps or major defects. This is still something that you want to check when purchasing a set of used blades. Fairness can be visually checked by holding the blade by one edge, and sighting down it, looking for any curvature.



Unfair blade (left) and fair blade (right)

Stiffness- Stiffness in a blade is a measurement of how much it deflects from straight (true) when a load is put on it. There are many ways to test the stiffness of a blade. For this test, we placed each daggerboard inside a centerboard trunk jig which was secured sideways. Then, we added a 10 pound weight, and measured it's deflection from true at designated points. We found that claims of boards with different flexibility were able to be verified, but we make no claim as to whether that flexibility is good or bad for your sailor. From stiffest to most flexible, here are our results:

- Optiparts
- N1 and DSK Dynamis are **statistically similar**.
- DSK Exelixis
- DSK Flexis



What to look for in a used set of blades?

There are four things you want to check when buying a used set of blades. As a rule of thumb, you are better off with older blades in good shape, rather than the newest blades with scratches or chips. Unless, of course, you are willing to spend the time and money to fix the blades.

1. Check the straightness of the foil by sighting down it for fairness. Unfair blades can rarely be brought back to fair, and should be avoided.
2. Check the finish to see if there are any scratches, chips, or dings. Look for scratches that your fingernail can get caught on. Small scratches can be easily sanded out, but deeper ones will require being filled with epoxy. Chips and dings will have to be filled and sanded.
3. Check the wood handle for any cracks. According to class rules, any wood can be used to make the daggerboard battens. However, finding a good all weather wood, and getting it to the correct size can be difficult.
4. Finally check the pintles for any cracking, and your fasteners for damage. These are easy to replace, and can be found online at optistuff.com.

Protecting the blades – A blade bag is a must have. For \$100, you can prevent costly and time consuming repairs to your \$800 investment. McLaughlin has written an extensive article on blade repair that can be viewed at the link at the end of this article if you do need to address any chips, scratches, or dings in a blade. You would be surprised how many scratches can be simply sanded out.

Caring for blades – If you want to keep your blades fast, you'll want to follow these steps. If you sail in a sandy area, make sure you rinse out your daggerboard **trunk** after every sail as pieces of sand trapped there can leave deep scratches in the daggerboard as it is pulled up and down. Store them out of the sun and make sure they are dry before you put them in the blade bag. Wet blades will encourage mold to grow and discolor the foam. Taking your tiller extension off when storing the rudder will also prolong the life of the rubber universal joint, as it will take the strain off from when it is bent. Rinsing the pintles and bolts on the rudder will prevent any rust from forming.

We hope this helps you make an informed choice on your next blade set. As always, feel free to call McLaughlin at 1-800-784-6478 to speak to an expert.

Article Links:

Pintles and Blade Hardware: http://optistuff.com/store/index.php?main_page=index&cPath=230_231

Blade Repair Article: <http://www.optistuff.com/info/faq/instructions/EpoxyBladeRepair.pdf>



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