

# McLaughlin Pro Racer Hull Specifications



*“EXCLUSIVE CUSTOM INNOVATIONS TO KEEP YOU OUT FRONT”*

The McLaughlin Pro Racer is engineered to be the absolute stiffest, highest quality and **MOST TECHNOLOGICALLY ADVANCED** Optimist available in the world. Continued testing and constant desire for perfection is our goal. Below is a basic explanation of how we can make these statements. Although the boat is constantly evolving, what is listed below should stand for evidence that we are always striving to be the best.

**TESTING-** McLaughlin is a company of sailors and engineers with a passion for building the very best boat possible. We understand that in order to build the best boat we must understand it, test it, and learn from it. This is only possible if there is a way to provide constant testing and feedback. **McLaughlin receives more feedback from top sailors, coaches, and distinguished customers than any other builder in the world.** The USA has one of the strongest and largest fleets in the world. Because of this, McLaughlin is able to quickly test our boat with some of the best sailors and coaches. This feedback is not just once a year like some builders. We personally attend over 30 regattas a year. This includes at least one annual IODA Continental or World Championship and multiple National Championships.



**CUSTOMIZED** –The Pro Racer hull is our development grand prix model. It is not just a fancy name for a production hull. They are usually built per order and to the specifications of the buyer. It comes with every option we can include to give the helmsman an advantage and we also invite the sailor to add his or her own ideas. Mainsheet rigging style, blocks,



dagger board configuration, hiking straps, bailers, nonskid and even hull cosmetics can all be customized to meet any sailor’s needs [Check out our photo gallery to get more ideas.](#) There you will find Pro Racer photographs in truly unique designs.



**BALANCED RIGID HULL** – All our hulls are laid up utilizing a custom made 45/45 biaxial glass. This glass is the most optimized and strongest glass allowed by the class. It is laid up along the sides and overlapped at the corners. This gives the McLaughlin hull exceptional stiffness and torsional resistance without the weight. Our cure process is also unique. Most builders need to turn their tooling every day. Our standard hull stays in the mold 48 hrs. This makes it very fair when it is finally demolded. The Pro

Racer hulls are laid up on a Thursday allowing an “over the weekend” two extra days cure time. Doubling the cure time assures the resin reaches full hardness holding the mold shape, creating an even smoother and fairer surface.

**VACUUM BAG PROCESS and OPTIMIZED BALANCE POINT** – Using the highest density foam allowed by the rules, our Vacuum bag process removes voids and creates a perfect composite bond between the hull fiberglass, structural foam and inside floor. Using the highest density foam allowed by the rules, this ultimately creates the stiffest and most durable hull possible. Over the years we have perfected the ideal location, number of the vacuum bag ports, and pressure.

**MIDSHIP FRAME-** We utilize the maximum allowable glass in all strategic areas of the midship frame thus resulting in the stiffest hull possible. We are able to do this through a process of using the perfect glass to resin ratio thus keeping weight to a minimum.

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Building a strong and balanced hull that is minimum race weight is not easy. It requires skill, technique and exacting measures. It’s not just about the weight. Balance and stiffness are critical as well. All of our builders are distinguished craftsmen with years of experience. Many of them have been with us for over 10 years and built nearly 10000 Optis. Through the years we have refined our processes to exacting standards guaranteeing consistent results.  
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**SHARPENED AFT CHINE** –All sailboats have a resistance component due it’s deflection of water sideways as it advances. This is known as form resistance. Extensive tank testing and computer modeling have proven that by sharpening the aft chine of the Optimist you are able to create a smoother release of water. This minimizes turbulence and thus reduces this resistance.

**FASTEST HULL SURFACE POSSIBLE**– Viscous Resistance or drag is the largest single resistance component that an Optimist builder has control over. A high gloss hydrophilic surface is the hardest type to produce but it is also the fastest. In addition it is also the easiest to maintain and longest lasting. Once the hull has been faired, mold release waxes are removed and the bottom is coated with a Teflon polish. The polish helps seal the gelcoat which helps with maintenance and has hydrophilic properties allowing the hull to be evenly wetted.

**LOW TURBULENCE CENTERBOARD SLOT** – The dagger board slot for the Optimist is significantly longer than the blade itself. We have determined the optimum location for the blade through years of testing and created custom inserts that fill in the void. This reduces water turbulence, decreases wear damage on the blade, and positions the dagger board exactly where it needs to be.



**APPENDAGE ALIGNMENT** –Placement of the mast step, dagger board trunk and gudgeons are critical. Over many years of production we have developed a system for placing the appendages exactly centerline consistently. We are so confident in our systems that we have even built a laser beam jig to prove it.



**FAST DAGGERBOARD ADJUSTMENT** *YOU'VE REALLY GOT TO TRY IT TO BELIEVE HOW AWESOME THIS SYSTEM IS!*

Our standard hulls have one shock cord that serves two functions – hold down the centerboard for sailing to windward and holding it up for sailing downwind. This system is simple but adds friction to the boat at all times. The Pro Race design has two separate systems. The first system allows one handed height adjustment with minimal effort. In the up position the board is cocked aft, which is preferred for low weather helm and down wind speed. This simple system also ensures the board is tied in as required by the rules. When returning from the race the board can be taken out of the slot without untying a line. The second system holds the board from moving up and down in sloppy seas and waves while sailing to windward. A vinyl tube handle is incorporated into the shock cord for quick release when you get to the weather mark.



**QUALITY RAW MATERIALS-** This starts with the statement *proudly built in the USA* because you cannot build the world's best boat without premium raw materials. The USA has the best refineries and resources in the world. We can confidently say our custom glass and premium resins are the very best on the market.

**RACING NON-SKID** - The Pro Racer ultra aggressive nonskid pattern maximizes traction to prevent slipping. A “T” shaped “sweet spot” is located where a properly trained racer should land after a good roll tack. This non-skid pattern is designed to also decrease bailer wear. The **Optimist “I O” emblem** is placed on the floor in the bow with non – skid. This prevents slipping when boarding the boat and when adjusting the sprit and vang. Plus *it just looks cool!*



**CHOICE OF RATCHET BLOCKS** - We supply your choice of either the 57 mm **Harken Carbo Ratchamatic** or the **Ronstan main sheet block**. In light air these are freewheeling in both directions. As the wind increases the added pressure turns the ratchet on. This function is adjustable with an allen wrench. The block has ultimate grip/cleating power of up to 14:1 for reduced arm fatigue. A Harken rubber standup boot prevents the mainsheet from getting caught in the spring provided on the standard boat.



**MAST CONTAINMENT** - The Pro Racer comes with a Vectran mast tie in line plus the EX1203 mast locking clamp as standard equipment. Both compliment the low friction gray deck collar and mast sleeve.



**MAST STEP ADJUSTMENT** - The mast step is equipped with a new nut and locking system. The locking finger prevents your mast rake adjustment from changing due to rough seas or transport vibration. The nut is not



constricted allowing the mast to go further forward and aft for better up and down wind performance.

**PRO RACER DOUBLE PADDED HIKING STRAPS** – Racers do not have the time to watch their feet enter the hiking straps before trusting them. The straps must be in the perfect position every time and padded on both sides in case of roll over. The material we use has an anti slip surface. The Pro Race hiking straps have been specially sewn with loops on both ends. The forward shock cord has been attached under the airbag pulling the straps outward. The rear shock cord places the straps parallel to the floor. The combination allows the straps to be perfectly positioned. A double Vectran adjustment line ties off the straps in the back guaranteeing zero give and maximum feel.



**OPTIMIZED SHEET SYSTEM** - Skippers need a thick diameter mainsheet that is easy on their hands. They also want a small diameter light weight line that moves easily through the blocks but does not gain weight if it gets wet. Our double tapered mainsheet solves all these problems. We sew a Trigger Snap shackle to the end of the line for quick conversion from a 3:1 to 2:1 ratio. With one hand you can release shackle reducing friction and the amount of line to be pulled in by 1/3 rd. This is fast and desirable in light wind situations.



**RACING BOOM PENDANT** - Harken Carbo blocks are the strongest and lightest blocks made for the Optimist. We custom sew a Harken Tie-Lite block to a 1/2 inch pendant, strap, which increases the efficiency of pulling in the main sheet while minimizing the weight on the boom and sail. The other end has a Trigger Snap shackle that allows the skipper to quick disconnect the mainsheet and boom when they return to the launch ramp or dock.



**BAILERS AND PRADDLE INCLUDED** – We have tried to make this hull as complete as possible. No other boat comes with the new orange 4.2 liter Bailers. These are design specifically for the Optimist with many great features. In heavy seas or a capsize they will remove water fast and with the least amount of energy of any bailer out there. The Praddel is required equipment on racing Opti's. Your Pro Racer comes with both at no additional cost.



